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ISSUE 29 • FEBRUARY 1989 • £1.50

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8000 PLUS

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EDUCATIONAL SOFTWARE

The best in PCW learning reviewed inside

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PUBLISHED BY
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EDITORIAL
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4 QUEEN STREET
BATH - BA1 1EJ
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COLOUR ORIGINATION
WESSEX REPRODUCTIONS
325 WELLS RD, BRISTOL BS4 0QL

PRINTING
REDWOOD WEB OFFSET
YEOMANS WAY
TROWBRIDGE • WILTS

DISTRIBUTION
SEYMOUR PRESS
334 BRIXTON ROAD
LONDON • SW9 7AG

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8000 Plus is an independent publication. The
company who produce it - Future Publishing Ltd -
have no link with Amstrad plc.

We welcome contributions from readers - please
enclose a SAE with submissions if return of the
material is required. Payment for accepted articles
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OPENING MENU

FEBRUARY MENU

- First Reviews
- Great Features
- Lively letters
- Invaluable tips
- Buyer's Guide

KEYWORDS

Final thoughts first

NEWS

Read all about it

QUICKIES

A personal organiser and a PCW toolkit

CASE IN POINT

How Radio 4 relies on the PCW

ASSEMBLER

Part 3: Macros!

COMMS

From messengers to telexes: a history

MINI OFFICE

Part 11: Ten tip-top tips

DTP CLIP ART

Two new packages reviewed

TYPESETTING FROM DISC

LocoScript direct to the finished page!

GAMES

Ingrid's Back, Clock Chess '89, World of Soccer

POOLS PREDICTOR

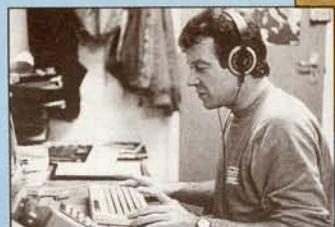
Could it earn you a fortune?

MINI OFFICE WALLCHART 2

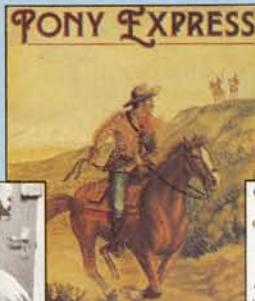
The Spreadsheet and Graphics menus

Z88

Part 4: Comms



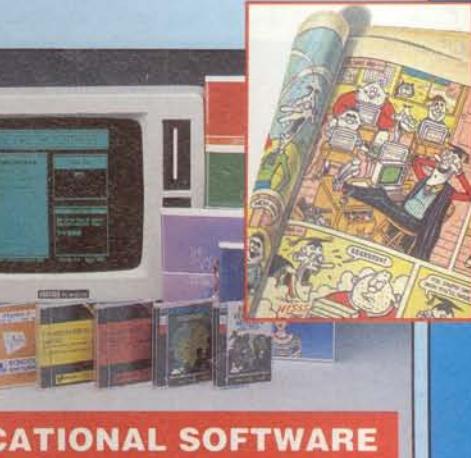
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EDUCATIONAL SOFTWARE

Turn your PCW into a teaching tool

PC TO PCW

How they can work together

BOOKS

From LocoScript to Machine Code

LANGFORD

You cannot be serious!

LISTINGS

A free graphics program, and more!

TIPOFFS

Four pages of power packed tips

GOOD SOFTWARE GUIDE

Databases, Education, Communications

SPECIAL OFFERS

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POSTSCRIPT

You say it all

ABANDON EDIT

Included in error...

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Games p41



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POLITICS, SOCCER, RELIGION...COMPUTING?

Question: what have politics, soccer and religion got in common? Well, the answer I had in mind was that they're all subjects banned from after-dinner conversation. Mention Margaret Thatcher and within five minutes fists are being banged on the table and the ambient temperature has risen five degrees. Talk about the match last night and half the table groans loudly while the other half replays the action enthusiastically with the condiment-tray. And if the conversation gets on to why God lets earthquakes happen you're not looking at your watch so much as the calendar.

But there is a new, insidious subject of after-dinner conversation guaranteed to split the guests into two camps. Computing. It usually starts with an innocent remark like '...and I had just finished working on my word processor for the evening, when...'.

'Oh, really, what do you have? A PCW, really? I've got one as well. You know how in LocoScript 2 when you're setting up headers...' And away they go, happily saying how they couldn't do without it, asking each other questions on LocoScript, saying how cheap the PCW is, how evil Amstrad are for discontinuing disc cases, what a duffer they are at computing.. meanwhile the other half of the room rolls its eyes in disgust and proudly discuss how they can't use a video recorder and believe microwaved food is bad for you.

By the time the decaffeinated coffee comes round, the PCW owners (and, interestingly enough, there are always two at every

dinner party) are promising to show each other their games and home accounts packages sometime, and everyone else is discussing Margaret Thatcher or Bobby Robson. Will computing join the other subjects as being taboo between the aperitifs and the washing up? Only time will tell...

Well, that's it from me. I'm out of here. I'm history. I'm off to edit New Computer Express, our zappy new weekly, the undiscovered country, from whose bourn no traveller returns - at least, not before the nine o'clock news most evenings. For 48p you get up-to-the-minute news on the current micro world and there's plenty of PCW coverage (including a regular column) so you can keep up with the 8000 and 9512 scene as well as home computers generally.

To everyone who's written and phoned with tipoffs, advice, news and gossip, thanks very much. In my humble (but nevertheless correct) opinion this flow of information makes 8000 Plus one of the best specialist magazines around, mostly thanks to you (but not forgetting our gifted art team, our trusty ad sales team and the Bath Tandoori).

Robinsley

Misprit: a apology

Arthur Wardell of Halifax, and a lot of other readers, must be wondering what we're playing at (PostScript, last month, page 86). He wondered why a PEEK we published in tipoffs a while back, to reset BASIC's random number generator so that it doesn't always churn out the same series of numbers, didn't work. We replied confidently that the tip had been misprinted: it wasn't PEEK 65404, but PEEK 94504, we said.

Clearly we've been got by that peculiar virus residing in CP/M which introduces errors between proofing and printing stage. The correct address was 64504. So, just to recap, to make sure a random number in a BASIC listing really is random, you should have lines something like:

10 RANDOMIZE PEEK (64504)
20 x=RND(1)
and so on. We guarantee this is correct...

Apologies too to Dr Clive Roberts of Bristol whose letter on page 87 of PostScript suffered from that bug which inexplicably introduces errors between the PCW screen and the final typeset page. In the BASIC listing, the command at the end of line 9000 should read FOR f=32000 TO a: and in line 9050 should read CHR\$(13): (semi colon-colon) instead of CHR\$(13):: (two colons). And the PIP command should not read PIP
M:FRED=AUX:[Q&:&Z] but instead should be PIP
M:=FRED=AUX:[Q^Z] - you can enter ^Z by typing [ALT]Z.

Column row

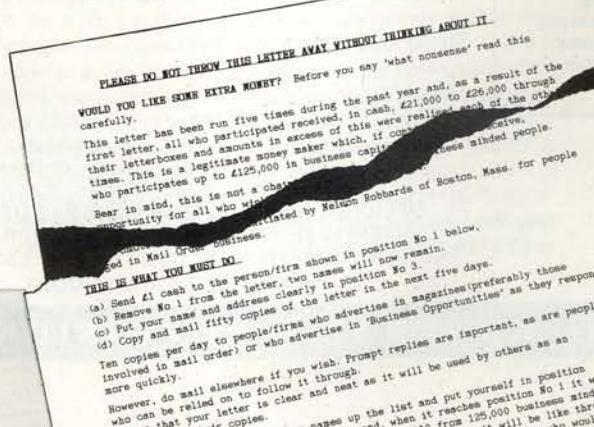
If you've been wondering why the article on LocoMail telling how to do two-column printing (issue 27, December 1988) didn't work, here's the answer. Use [ALT][RETURN] to make page breaks instead of (+LL) as suggested; (+LL) is used to split the actual text in the data document to give equal length columns in the last page of the resulting column, but should not be used elsewhere. Thanks to Alan Cossey, author of the original, for pointing this out, and slapped wrists for a Technical Editor who shall remain nameless.

8000 PLUS

The mad March issue of 8000 Plus will be bound for the shops on February 23rd. Don't have after it at the last minute - order your copy now!

Chain reaction

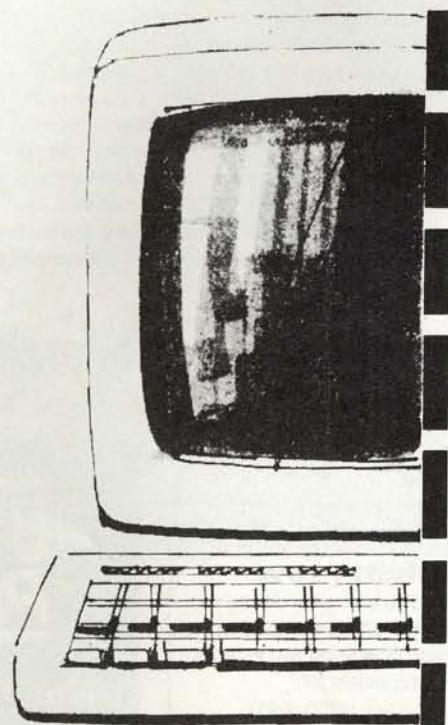
A reader sent us this letter he received recently - he suspects his name was taken from the small ads section of 8000 Plus. He didn't comment, and none was needed - it's a chain letter pure and simple. This is one use for LocoMail we don't recommend! If you get one, there's only one thing to do with it - take it to the local paper recycler's.



Counted out

Cumana's phone number should have been 0483 503121 and not as printed in the All Shapes and Sizes feature last month.

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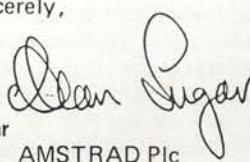
One of the many reasons why computer journalists have received our products so enthusiastically is undoubtedly our careful attention to providing information on the system and its software.

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Yours sincerely,



Alan Sugar
Chairman AMSTRAD Plc



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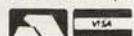


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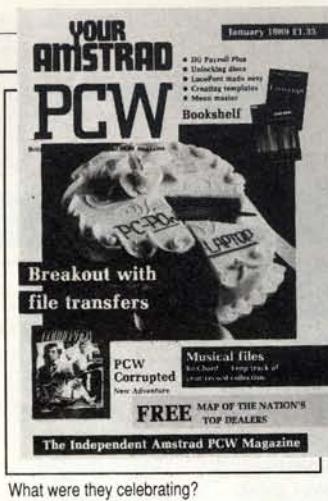
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Reload those magazines

The official Amstrad magazine *Amstrad PCW Magazine* published by Avralite Ltd, which recently bought out *Computing with the Amstrad PCW*, has itself been sold to Focus magazines, publisher of *Your Amstrad PCW*. It is generally thought that two PCW magazines into one company don't really go, and that one or other of the above will soon have three titles on its cover. ■



What were they celebrating?

Flipping price increase

The bad news is that the £25 utility from Imperative Software that gives you an extra PCW is going to cost more from February. The good news is that it's only going up to £29.95 but will be easier to install and will include new features.

Even better, the improved version will work with the Mini Office suite of programs as well as with the latest version of LocoScript (version 2.2, the one for LocoFile). Now you can have any of your favourite programs running side by side on the one machine and flip effortlessly between them – except Batman, bad luck Robin.

If you already have Flipper 1 you can upgrade to Flipper 2 by sending your original master disc and £5 to Software Imperative, Ashleigh House, Bussage, Stroud, GL6 8AZ. ■

RIP

The sad demise of PCW File will come as no surprise to those who didn't know much about it.

The magazine was a DTP product available by subscription but not enough people subscribed; it has therefore closed amid tales of financial woe – there is some talk of court actions pending.

Existing subscribers may get some money back at some unspecified future date.

The PD software library is continuing to operate under the auspices of Bob Ellis; details on 0432 761860 after 7pm.

Much of the defunct magazine's work will continue on the telephones lines. The BOOG bulletin board at Fleet will carry a special PCW interest section for those already plugged in to the future. Tel 0252 626232, 24hrs a

day. V21, V23 only. As a last service to his readers Chris Bryant, the former editor, is offering the last 14 back issues for £13.95 which will help pay off some of his debts. Cheques payable to C. Bryant, 11 Havenview Rd, Seaton, Devon, EX12 2PF. ■

Laser beams

The PCW is wonderful for processing the words but what about their final form? For some purposes dot matrix print, however good, is never going to be good enough.

If you need the very best print then you would normally go for a daisywheel printer, but you might want more, for example very fast, very quiet printing or the ability to mix typefaces easily on the page. In that case you have to investigate a new kind of printer, the laser printer.

Until recently these beasts came in anywhere from £3000 up but as the market grows and the manufacturers' expertise increases, prices have begun to fall. By the end of 1988 retail prices were hovering at the £2000 mark, now they have finally dropped firmly below that figure. And it is rumoured that Locomotive are considering developing laser drivers for LocoScript 2.

Laser printers produce a complete page at one go and the speed is virtually the same whatever is on the page, a bit like a photocopier, therefore it makes sense to measure their speed in pages per minute rather than the more traditional characters per second. Most laser printers operate at either 6 or 8 pages per minute (ppm). It's the 6 ppm machines which are dropping fastest in price.

Leading the way at the moment are Epson, who have just

NEWS

Mini Office II will have Thesaurus

Mini Office, released at the back end of 1987 by Database, set new standards in PCW software. Word processor, spreadsheet, database, a comms and graphics package – all for under £30! However, there were problems. No spell checker, a few niggles with import and export from the spreadsheet and database, and a manual which described everything in such glib and unhelpful terms, users went through a whole thesaurus on insults for it.

Now Database have announced a new and improved version of Mini Office Professional, answering those criticisms – and even including a thesaurus for all wordsmiths, journalists, writers, authors, editors, hacks and scribblers. There'll also be a completely new manual.

The upgrade affects virtually the entire package and will seek to redress some of the shortcomings of the original. You will be able to import and export data from the spreadsheet, for example, a limitation currently severely reducing its power, and be able to import data into the database module.

The communications module gains ANSI emulation and an auto dial facility. You can specify a number you often use – Microlink, perhaps, or your friend who also has a modem – and thereafter a single keypress dials it for you. This a boon to all those with auto dial modems who've been gnashing their teeth with frustration.

The word processor gains improved printer control and support for 24 pin printers such as the NEC series currently being sold by Locomotive with drivers for LocoScript 2.

It also gains two new modules to add to the five currently in the suite. There will now be a 50,000 word spelling checker and a thesaurus which will also be sold separately; the price will be £20. Database say these two new modules will work not only with Mini Office word processor files, on the document currently being worked on, but also with LocoScript and Protext files.

The new Mini Office will include a comprehensive manual by John Hughes covering all the seven modules and should be on sale in February at £39.95.



announced a new deal on their GQ3500 laser printer. This 6 ppm machine can now be bought for £1599 + VAT. The printer comes with HP LaserJet+ emulation, Epson LQ emulation and EPSON Pagemaker emulation, 640k of memory, 7 built in GQ fonts, 2 Epson selected font cards with various extra fonts and a lot of

other stuff which they will tell you all about if you ask them nicely.

The price includes a 150 sheet input tray and a Centronics interface so that it can simply plug in and go like any other printer. There is also a free 1 year on site warranty.

For more information contact Epson on (0442) 227227. ■

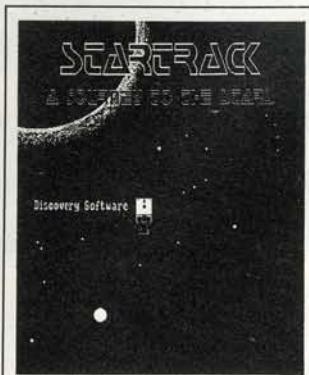
Sky's the limit

Since the PCW displays bright dots on a dark background it can be made to provide a reasonable emulation of a sky at night, though on an 8000 machine they all look green of course. Discovery Software have spotted this and written Startrack - a program which boldly goes where no software has gone before.

Startrack can show any area of the night sky from any position on Earth at any time from 1000 AD to 2999 AD. It can animate the scene to show the stars moving as the months roll past. It can also display stars of just one particular magnitude.

Available from Discovery Software, 262 Regents Park

Road, London, N3 3HN. Price £14.95 inclusive of VAT and Postage.



Enjoy the night sky without losing any sleep using the Startrack software.

Rhyme time

Thurston Techniques intend to release two new products in the new year, both of which will work with LocoFile. The first of these will be a thesaurus, probably the first to be offered for the PCW while the other will be a dictionary of rhyming words. They will be aimed primarily at writers. Don't throw away your Roget just yet though, there's still a lot of work to be done. Further information from Thurston Techniques on (0395) 277496. ■

A program for PCW users

The Hampshire PCW User Group has a new address at the Counting House, Unit 5, Cable Street, Northam, Southampton. To celebrate this fact they also plan a new program of events.

Tues 3	Jan
Mailmerge	
Wednes 1	Feb
DTP	
Thurs 2	March
software	PD
Mon 3	April
Spreadsheets	
Tues 2	May
Graphics	
Wednes 7	June
Electronic Mail	

All meetings start at 1930 hours (note use of 24 hour clock) and time is set aside for a discussion of problems and tips after the presentation. Further details if you send an SAE to Peter Bassett, Membership Secretary, 27 Fellows Road, Farnborough, GU14 6NU. piccy: might be one coming ■

Cheaper Z88s

All those little boxes you needed to buy to make the Z88 functional are a thing of the past now as Cambridge take a leaf out of Amstrad's book and provide the complete kit in one box. This should already be available at most Z88 stockists.

The pack includes a carrying case, mains adaptor, four batteries (no, batteries were not included), 128k ram pack, new user manual and the Z88. The whole kit comes to £299.95 + VAT. Is this the beginning of a fall in the price of the Z88 to the point where it becomes an essential peripheral to your PCW rather than a luxury? piccy:NCE have one - used in recent issue ■

Green paper

1989 seems set to be a Green Awareness year, with more and more small companies offering recycled computer paper for computer users who want the world to still be around when LocoScript 1 has finished scrolling through to the end of that document.

Carolyn Hobbs has just set up a new stationery business dealing only in recycled paper. The only thing they intend to trash is the general opinion that recycled paper is coarse and low quality - their paper should be the sort of stuff you could write your love letters on. Contact Looks Good Stationery, 111 New Street, Horsham, West Sussex, RH13 5EA. Tel. (0403) 55525. ■

Board meeting

Anyone familiar with the bulletin board scene can't have failed to notice the preponderance of PC oriented boards, a deeply depressing sight for CP/Mophiles. So recent word of a new board heavily committed to supporting the PCW machines must come as the singing of nightingales.

The board in question is Absolute Zero, London based and open from 6 pm to 8 am and all day at weekends - these people never sleep. The board runs on a genuine IBM AT (which can be forgiven) with a Pace series 4 2400S modem supporting baud rates V21 through V22bis. Contact them on 01-741-7233 or via Fido address 2:254/18.

This is a new board so put something in as well as taking it out. ■

IT's...

The recent report of the House of Commons Trade and Industry Committee on IT (You know, the Warren Report on Information Technology) came out firmly in favour of IT.

Information Technology is the catch all phrase to describe the various aspects of information handling in computer based offices. This is becoming increasingly important as work is being shared over a number of often dissimilar machines.

A consequence of this is that information often only appears on computer screens right up until the moment of publication (8000 Plus is produced this way) with the various contributions to the work, whether it be engineering design, publishing, financial reports or whatever being worked on by a number of people and assembled into a single unit at the end of the process.

The Warren Report recommends greater management

understanding of IT (as distinct from awareness), more user training to tackle skill shortages, improved productivity and software engineering. For a full discussion of these and even more arcane points buy a copy of the report from HMSO.

comment: this is boring ■

Which computer show?

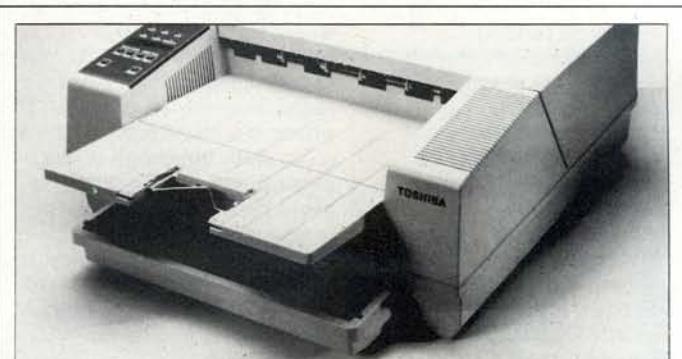
Computer shows divide neatly into those where you can literally feel the Heavy Metal music shaking the stands and those where the silence is as deep as the carpet. The latter tend to be populated by men in grey suits who actually use spreadsheets. Other software they use includes word processors costing over £300, DTP packages that can cost £800 and CAD software as expensive as the machines it runs on. We are talking business here.

The Which Computer? Show at the National Exhibition Centre in Birmingham is the show that aims specifically to satisfy the needs of the computer oriented businessman. The usual CAD village, DTP Centre, Computer Consultancy Centre and Office Equipment Environment will be there as well as the Which Computer? Show Conference. Not a day out for all the family. ■

Piece of the action

If buying a laser is out of the question but you could really do with one right now then Electronic Printing Systems Ltd have the answer. They will rent you a laser printer for periods of from 1 month upward.

For a 6 ppm Laserjet series 2 machine 6 months rental works out to about £187 per month while a single month would set you back £250. Contact them on (0329) 221121. ■



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LEARNIN

Education is a wonderful thing. Sharon Bradley looks at how you



Okay, so we know that the PCW makes an excellent general writing tool, a sturdy number-cruncher and an accurate accountant. We also know that a whole new world of fantasy and leisureware is slowly but surely opening up for it. But there's another domain for which the PCW is particularly well suited and in which it can successfully hold its own against bigger, more powerful machines: education. The PCW is first and foremost a home computer; most people who've got one probably have it sitting in their dining room or study rather than in their office. Given the right software, therefore, it can make an effective complement to a day's work in the classroom.

People have always been trying to sweeten the pill of learning. It's debatable just how much of a novelty using a computer actually is for kids now; sometimes it seems as if the acquisition of keyboard skills is taking place at the same stage of development as learning to walk. But learning by way of the PCW can still provide a different and enjoyable way of consolidating knowledge acquired through more orthodox methods.

More and more educational software is appearing on the market at fairly reasonable prices. Learning matter ranges from crash touch-typing courses to general knowledge quizzes based on world geography. The majority of it, not surprisingly, tends to be for the standard GCSE age-group, although some is geared towards very young users and some to adults. Here's a round-up of what's available, what the various packages actually do and how well they do it. The best way to tackle the market is subject by subject

(Maths, foreign languages, etc) although you'll find a directory at the end of all the packages mentioned.

Mind your language

English, like Maths, constitutes an important part of any school syllabus. Better Spelling, just one of the software titles from School Software, has been written for children between the ages of nine and fourteen to help them get to grips with some of the more problematic areas of grammar and spelling. You can choose whether you want to answer a series of up to twenty questions on either Plurals, Irregular Plurals, Spelling with Prefixes or Suffixes, Spelling with silent 'e's or past tenses. It also provides ample practice in commonly made mistakes with 'there', 'their', and 'they're', 'to', 'too', and 'two' and so on.

Once you've selected the weakness to be tackled, you can decide whether you want to see some notes about that particular problem before the questions start coming up. They are very cursory, however, and could leave the novice grammarian even more baffled than before. It's all very well saying 'whom' is only used with people and that 'which' is only ever used with things but glib informative punches like "**WHO**" and "**WHICH**" are relative pronouns' might do more harm than good. Lots of adults, let alone children, wouldn't recognise a relative pronoun if they tripped over it. Grammar is like most things in life: it helps to have the feature thoroughly explained before you start giving it a fancy name.

Once the questions start coming up, there are various counters on the screen to tell you exactly how many questions you've answered, how many of them are right and

G CURVE

can do it with your PCW...



Better spelling to Physics: School Software titles from £14.95

how many of them are wrong. If you get something wrong, you'll be told exactly what it ought to be. The most irritating thing about the program is the annoying bleep that heralds every new word or sentence on the screen. Neither is there any save facility if there's a power cut or if you just simply have to switch off and go away for a while.

There's no doubt, however, that the program is worthwhile. It provides ample practice of difficult spellings and is very easy to use.

Write Right! from Wadd Soft which was reviewed fully in issue 25, page 16 is a thoroughly excellent English language package and is ideally suited to anyone at secondary school and beyond. It would be a good buy for the foreign English language learner mainly because it encourages straightforward modern usage. Far from harping on about the pens of my aunts and the desks of my uncles this educational package at times gives you the feeling of being locked inside some incredibly addictive general knowledge quiz. Write Right covers everything worth knowing (from punctuation and vocabulary to syntax) and, in a nutshell, makes learning fun.

CARA (for Computer Assisted Reading Aide) by RDI is an unusual package. Its creators, who are experienced programmers, teachers and parents themselves, found that many children were not making the expected progress in their reading skills. As a result, they have formulated this PCW-based return to more orthodox ways of teaching children how to read.

Young children can easily be daunted by seeing too many words in front of them waiting to be deciphered. CARA's main strength lies in its distinctly uncluttered approach. Only a very few words from the pre-selected category appear on the screen at any one time. The program relies heavily on parental participation as well: there'd be absolutely no point in buying this if you want to sit down quietly with a cuppa and read the Sunday papers. Before the child can start reading the word lists displayed on the screen, the parent is asked to set up a number of defaults: which word category to choose from (there are a number of choices ranging from cities and countries to names associated with food), the number of words to be shown per screen and whether you want to keep a running total of how many words the child reads correctly.

There are a number of sentence categories to choose from as well. There are conversational sentences in German for users who want to practise their pronunciation and general knowledge type questions as well. The only problem with these categories, and it happens in all of them, is that

various sentences, questions or whatever will start to reoccur with monotonous regularity even as soon as the next screen. A number of errors also crop up from time to time in the Italian words and phrases category alone: el giudice instead of il giudice, u regalo instead of un regalo. In an educational package, mistakes like this aren't really on.

It's not immediately obvious what this package offers that a book doesn't; the program demands close parental participation and it's really vital if the program is going to work properly. The foreign language sections seem very dodgy: if you don't know the words well enough to have to practise saying them, then there seems little point in reading them without having an audio cassette to guide you in the pronunciation. Having said all that, CARA might just be the answer for children with special learning difficulties.



Learning to type with Iansyst and two educational-cum-fun packages from Bourne Educational Software

Pluses and Minuses

There is a healthy proliferation of maths educational software at the moment though they are all fairly similar. Long multiplication and division tends to be their limit.

Maths Mania from School Software is for children between the ages of 8 and 12. What's surprising about this program is that there are five levels of difficulty for the multiplication exercises (level 1: 4x0 and level 5: 53x800) and two levels of difficulty for the division; but the program has absolutely no addition or subtraction exercises to offer on any level whatsoever.

It's good, however, at presenting large attractive-looking numbers on the screen even if you can't go as far as to say it's got wonderful graphics (and you probably wouldn't). Children will generally make a more concerted effort to learn if they can get a positive feedback from their 'teacher' when they solve a problem correctly and by gentle encouragement when they don't. This program does both of these things well with zany little messages appearing on the screen after each entry (although it has to be said that you can almost hear the twang of its American accent).

Better Maths, also from School Software, is basically a continuation of Maths Mania for the next age group up – 12 to 16 year olds. The topics covered are varied, ranging from

Word Count

The English language has one of the widest vocabularies in the world with about half a million words. Something like 400-500 million people speak it as their first or second language in around 50 countries which makes it the most widely spoken language. Out of half a million words that are available, the average speaker only ever uses about 5,000.

Viewbook views

Current viewbook titles range from Science in Society and Ethnic Minorities to Atmospheric Pollution and Disappearing Forests. However, IE are currently bringing out the first two of a new range of Viewbook Shakespeare titles aimed at the GCSE level age group. Also costing £17.00, not only will they contain the full text of the plays, but cross references within the text will link directly to the glossary section. The viewbooks are easily manipulated and, like any database, have a strong recall and cross-referencing system. Commands are refreshingly intuitive: pressing [N] takes you onto the next page; [T] turns to a specified page; [S] triggers an impressively thorough search facility.

Adult education

Not all educational software has been written just for kids. If you're a stumbling two-finger typist who would like to learn to touch type as quickly and as humanely as possible you could look at Lansyst's Two Finger to Touch Typing Conversion Course.

The good thing about the course is that you can work at your own pace; you're gradually weaned off all your bad habits without a drastic plummeting in your own productivity. Each lesson introduces a small reform in your existing habits (like reserving certain keys for certain fingers) and you go away and practise it until it starts to come automatically. Then you start the next lesson whenever it suits you; it might be a day or even a week later.

The course is realistic; they're not training you to be a concert pianist so you don't have to start forcing yourself to type rhythmically (something that most touch-typing schools advocate). Neither will it turn you into a copy typist; the course takes for granted that what you'll be typing will be coming out of your own mind. It's basically ideal for frustrated writers who feel that they could 'write' so much more quickly if only they were shown how.

Lansyst also do another course called the Crash Course in Typing. Like the first one, it keeps a record of your speed and accuracy and you can start exactly where you left off last time. It's very user-friendly; encouraging little messages like '... don't be mind-

boggled. Relax' should start to help you do just that. The practice sentences they give you to type make interesting reading. Rather than *asdfjk1*, you are invited to smite me with a mighty baseball bat.

Information Education have produced the ultimate in the free formal database, Viewbooks, as they're called, are books on disc. You can either read the pages one at a time on the screen of your PCW or print out pages of special interest. A very wide range of titles are available to choose from although, at the moment, the subjects under scrutiny have a distinct social sciences bent.

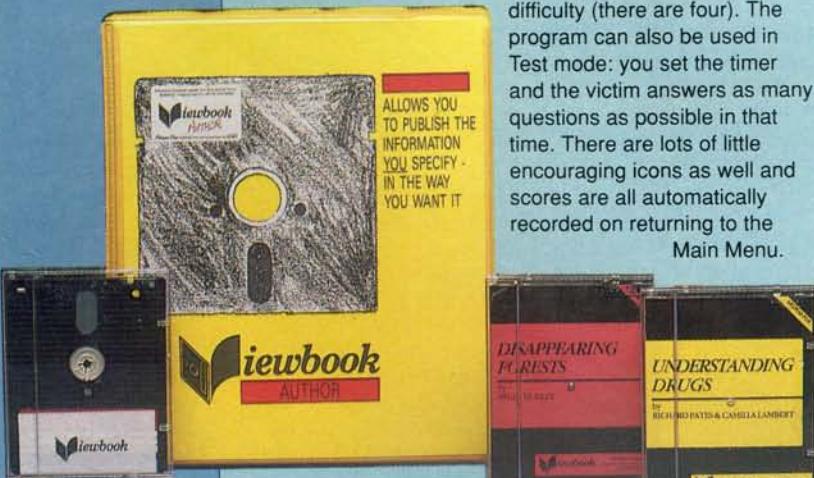


Colourful language tutors from Kosmos Software all at £19.95

statistics, simple interest, and ratios to algebraic expressions and approximation. Each topic consists of 10 multiple choice questions with a choice of four answers. At the end of each set of questions, the percentage scored is shown.

Supermaths from Abacus Software (reviewed fully in last month's issue on page 27) exercises basic numeracy skills and will be great for maths teachers because it offers a highly original Worksheet mode. This means that you can print out worksheets on the PCW's dot matrix printer. All you have to do is select the operation (you've got the standard choice between addition, subtraction, multiplication and division) and the level of difficulty (there are four). The program can also be used in Test mode: you set the timer and the victim answers as many questions as possible in that time. There are lots of little encouraging icons as well and scores are all automatically recorded on returning to the

Main Menu.



Information Education's Viewbook Author with titles

CASA (or Computer Assisted Sums Aid, again from RDI) offers a slightly wider spread of learning; it tries to familiarise its student (who can be aged anywhere between 5 and 15) with a whole range of problems touching not only on arithmetic but also algebra and geometry. It's also quite a 'vocational' package in that it will present various problems in a way in which they're likely to occur in everyday life: shopping lists, for example. The student might be asked to calculate the amount of change due if they pay such and such a bill with a note of a given denomination (they're usually quite large and rarely ever seen, let alone handled, by most of us – still that shouldn't stop us from working it out).

Many of the questions are presented like the good old-fashioned problem: 'If I buy 3 items @ £5.28 (each), 2 items @ £6.43 (each) and some @ £2.95 how many items @ £2.95 did I buy if the bill comes to £40.50?' ... and so on. The nice thing about the program is the way in which the problems get progressively more difficult.

Giantkiller, though, from Topologika really does stand out a mile as a program worth getting hold of. It's a 'maths adventure' for children aged ten and above and has really tried to break the mould of conventional maths teaching. It might just have worked too. The adventure is based loosely on the story of Jack and the Beanstalk but unlike a simple adventure game, it presents various (and usually boring) mathematical topics in the form of wickedly ingenious puzzles to crack. They've all been worked plausibly into the flow of the story as well. This one gets full marks for making learning fun, even if it doesn't feel anything like learning. Any game that can strip maths of some of its mystique has to be worth a second look.

Scientific Investigation

School Software have produced a number of other science titles which will provide great revision practice for GCSE students. Biology, Chemistry and Physics 1 have been designed to complement those large GCSE revision textbooks which break down a syllabus into topics and then provide notes and questions on salient facts. These packages will help the student to consolidate what they know and provide the answers to the odd question that has somehow slipped through the net. The various exercises are easily repeated if one 'showing' isn't enough.

In each of the packages, ten questions are usually awarded to each topic. You're allowed two goes (the second will provide a clue, usually in the form of the first two letters of the missing word with which you've got to complete a given sentence) before the right answer is supplied. One of the main drawbacks of the packages is that it tends to be quite pedantic: it's annoying to be told you're wrong merely because you entered *TOOTH* instead of *TEETH*.

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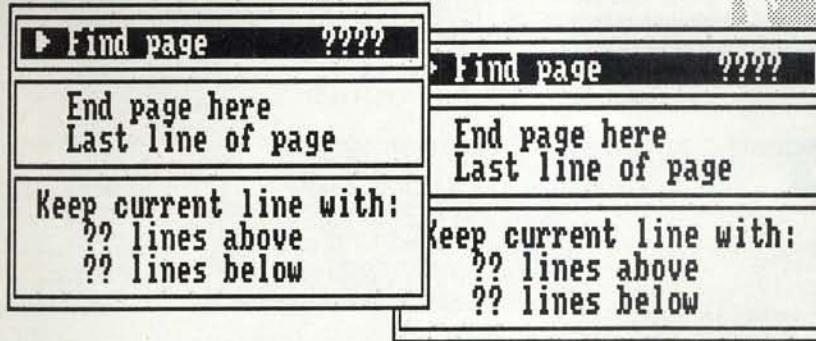
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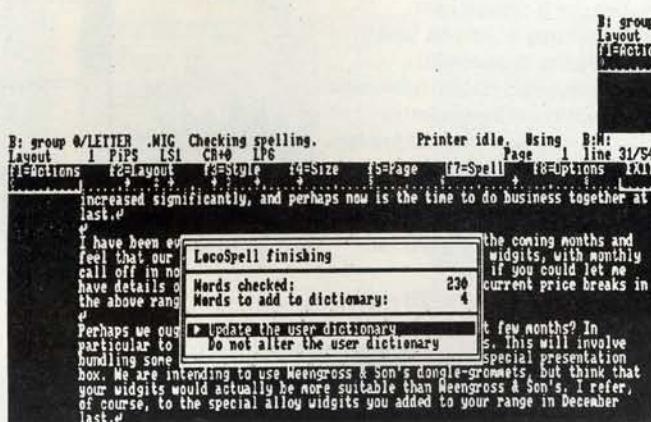
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widgits. In the meantime, our needs for an u
increased significantly, and perhaps now is
last.

I have been evaluating our likely need for w
feel that our initial order will be for 10,0
call off in no less than 5,000. It would be
have details of your current prices, and of
the above range.

Perhaps we ought to get together at some time
particular to discuss a new project we have on the stocks. This will involve
handling some widgets with a free dangle-grommet — in a special presentation.

Printer idle, Using B:Mi
Page 1 Line 3/54

Stopped at: since

Replacement: since

► Use suggested replacement

Replace and then edit

Edit this word

Consult dictionary

Ignore this word

Mark this word correct

Add to user dictionary

TOGETHER LOCOSCRIPT 2 AND LOCOSPELL MAKE
YOUR PCW MUCH BETTER — BUT THAT'S NOT ALL...

Parlez-vous Deutsch?

For some kids, the mere thought of spending a double period locked in mortal combat with an endless table of irregular verb constructions can sound the ultimate death knell; it's about as interesting as watching paint dry. Quite often, foreign language learning will only start to really appeal long after the classroom doors have closed on us for good, as the large numbers of adults attending night school in Swahili, Russian or even plain old French would seem to bear out. Kosmos have introduced a range of language tutors to help out both kinds of learner.

They do four packages: The Italian Tutor, The Spanish Tutor, The German Master and the French Mistress. They have identical formats and the very good thing about them is that they can be used just as effectively by an Italian/Spanish/German/French student who is learning English. You choose whether you want the words to appear on the screen in, say, Italian only, English only, Italian followed by English or finally English followed by Italian. The various scenarios chosen for introducing new vocabulary are the usual ones: the family, the dwelling, household items and so on. There's obviously a limit as to how innovative you can be on that front. In time, you can of course start editing various of the lessons to include new words.

The programs have got lots of features to make vocabulary learning as painless as possible and there's a self-test option which will tell you what your average accuracy is, how many of your answers were right and how many of them were right with help from the computer.

The programs' main drawback is that they are basically vocabulary-learning tools; they will teach you new words, verbs and well-known phrases until the cows come home, but there are no grammar lessons to show you how to string them altogether. Just how useful they are without audio cassettes to help with pronunciation is also very debatable. They'll be great as an adjunct to more conventional methods of language learning but you'd probably be well fed up if you bought them expecting them to be, in themselves, a passport to total fluency.

'Think of an object ...'

Children are quite competitive creatures whether they're pitting their wits against their peers or against a PCW. Perhaps that's where the attraction of general knowledge type quizzes lies: in knowing the answers to more questions than their friends. Worldwise and Animal, Vegetable and Mineral are two educational-cum-fun packages with a difference for young children: the children build up the stock of questions themselves. In the process, however, they're going to have to consult atlases and other reference books. Or even just ask you loads of questions.

Put simply, the child has to think of an object and the computer will eventually deduce what it is by asking a series of yes/no questions. The program begins with a bare minimum of stored objects and questions; the child gradually enlarges it by typing in the correct answer when the computer gets stuck, and adding a yes/no question which will distinguish it from the other objects stored.

The child, as well as having fun, is also exploring the computer's true purpose: a box in which to store and recall data. These programs may well require parental supervision, though, because there's a lot of scope for incorrect typing (and inappropriate additions!).

QUMA (Quiz Using Multiple Answers) from RDI is a very comprehensive quiz for much older users (ie, the young teenager to the adult). There are plenty of question categories each one having up to 100 multiple choice questions. You can also make up your own questions in categories of your choice; in fact, you could even go so far as to have hundreds of categories spread over dozens of different discs. ■

Prose and cons

Like everything else, educational software has its disadvantages as well as its advantages. It's unwise to assume that just because it's computer-generated learning it must necessarily be a Good Thing.

Some of the software we've looked at – especially the programs that have been designed for younger children – could have been made more attractive and alluring by incorporating more exciting graphics. Okay, so the PCW was originally designed as a text only machine, but the power of the computer hasn't been anywhere near fully harnessed.

Increasingly parents are feeling a responsibility to cultivate in their kids 'computer awareness'. But unless the software you're considering can offer your child more than a good old-fashioned book, think carefully before buying it.

Computer-based learning is non-portable and less instantly accessible. It involves making a date with the PCW, sitting down in front of it and loading the program in question. It's true that any progress made can be stored and is slightly more tangible; it can be referred to any time. But unless computer

learning is carried out in groups (and, to be fair, it often is in some schools) learning can be an isolated experience with no peer competition or encouragement.

On the other hand, there's no doubt that computer-based education can be a boon for kids with special learning difficulties. Computers, unlike teachers, are relentless and some children find that the best way for them to learn a mathematical formula or an irregular verb is by ceaseless repetition. A computer, unlike a teacher, has that time to spend. Additionally, with some software, a child can progress to the more difficult parts of a program only after they've mastered the easier bits.

The last word is this: try and dissuade your kids from going out and building a huge bonfire for all of their books in the back garden. Books will always play a valuable role in any child's education and are just as effective tools for interactive learning as computers. It's not likely you'll go far wrong if you learn to look at educational software as a complement to more traditional methods of learning rather than as a total substitute for it.

DIRECTORY

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Bourne Educational Software Ltd (0794 523301)

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Kosmos Software Ltd (05255 3942/5406)

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The Italian Tutor £19.95

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RDI Ltd (01 441 1064)

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QUMA (Quiz using Multiple Answers) £14.00

School Software Ltd (010 353 614 94770)

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Topologika (0733 244682)

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Wadd Soft (0253 721303)

Write Right £9.99

Easy writer

Viewbook Author, at £69.00, is the program which allows you to create your own viewbooks. By using the master shell files provided on the master disc you can mould your own word-processed manuscripts into viewbook format for 'publishing'.

Disc surgery and data recovery: a look at two disc editors.

Anatomy of a disc

The PCW's floppy disc is a disc of plastic 3" in diameter which is coated in the same sort of magnetic material as a cassette tape. Any disc has to be formatted before it can be used to store data, a process which writes a preset data pattern all over the disc, dividing it up into areas which the computer can then address by number. These areas are called sectors and can each hold 512 bytes of data. The disc is then split into a number of concentric circles of data called tracks.

RANGE OF FEATURES 4/5 **EASE OF USE** 3/5
PERFORMANCE 4/5 **DOCUMENTATION** 4/5
8000 PLUS VALUE VERDICT 4/5

8000 PLUS VALUE VERDICT 4/5

DISKEDIT

£7.95 • Donald McIntosh (47 Almondell Terrace, East Calder, Livingston, West Lothian EH53 0EZ) • All PCWs

Another disc toolkit, this time with a significant drop in price. Unlike PCW Toolkit, Diskedit seems to have been put together for the benefit of the experienced home-computer buff who is presumably used to things going wrong and who knows instantly what measures are called for. The user isn't told, for example, what procedure to follow in the case of an accidentally erased file or a corrupted disc; it's just assumed he or she will know which features to bring into operation.

The on-screen display is clear and virtually identical to that of the PCW Toolkit. There are two main display windows, the larger one filled with numbers displayed in Hex, the smaller one showing an ASCII representation. You move your way around the windows using the normal arrow keys and all the commands that you're likely to need are constantly displayed as keypresses at the bottom of the screen. To toggle between the Hex and the ASCII window, for example, press [M]. (Most of them are fairly intuitive, however.)

Like the program reviewed above, Diskedit works on a buffer containing just one of the disc's sectors (512 bytes in size). Because not all of this can be displayed at the same time, the buffer is split into two pages of 256 bytes each. By pressing [F] you can flip from one page to the next without losing changes made to either. Similarly, you can move backwards and forwards between sectors and tracks.

Any changes you make only happen in the buffer; it's good news in that you can't do any damage to your disc.

RANGE OF FEATURES 3/5 **EASE OF USE** 3/5
PERFORMANCE 5/5 **DOCUMENTATION** 2/5
8000 PLUS VALUE VERDICT 3/5

unerasing a file or logging in a disc, the screen display highlighting all the available options is continually present. This means that you don't have to keep consulting the manual every five minutes.

The program has got three command modes: Command, Edit and Copy. With the first one, you can select things like drives and discs and examine tracks, sectors and blocks on a suspect disc. In Edit mode, you can move the cursor around the display window (which shows the 'innards' of sectors read from the disc), fill a block with a value and CUT and PASTE data into other sectors. COPY mode, not surprisingly, lets you copy tracks or whole discs whether they're damaged or not and is one of the program's most powerful features.

The PCW Toolkit provides a variety of functions to help you copy and recover data from discs in amounts varying from a few bytes through to a whole disc. In Command mode, for example, you can use the PASTE key to build up a file on drive M which consists of data taken from other sectors on the disc. Provided you can find the contents of a file, you can roll out a new file sector by sector on drive M. Using CUT and PASTE within Edit mode, on the other hand, you can 'cut out' data, place it in a buffer and re-insert it at any other place in the sector.

Full marks go to the manual for making a potentially incomprehensible examination of data storage and the make-up of discs understandable to the complete novice. It also has a useful technical reference section. All in all, PCW Toolkit is a good buy for the PCW user who either works at normal levels of efficiency or who is particularly accident-prone. That probably covers most of us. ■

straight away but bad in that you can lose hours of hard work just by moving to another track or sector without first saving anything to disc. The program offers you nine scratch pads, however, to which you can copy up to as many buffers.

Also supplied with the program are a number of utilities to make life that little bit easier: you can, among other things, do a disc directory, erase and rename files and 'type' them for instant screen display. If you haven't written anything new to the disc since erasing you can even revive erased files using the Alter directory option from the Utilities menu. RFORMAT, on the other hand, is a disc formatting routine which gives data discs of 178k rather than Diskit's usual 173k.

Unfortunately no manual is supplied with the program — you have to print it out from the disc before you get going — all twenty-odd pages of it. Even then, the help afforded is limited. The features are all admirably highlighted but for the newcomer there's not a whisper of why he or she would want to make use of them in the first place. Definitely a package for the experienced PCW user who is already intimately acquainted with the anatomy of his discs. ■

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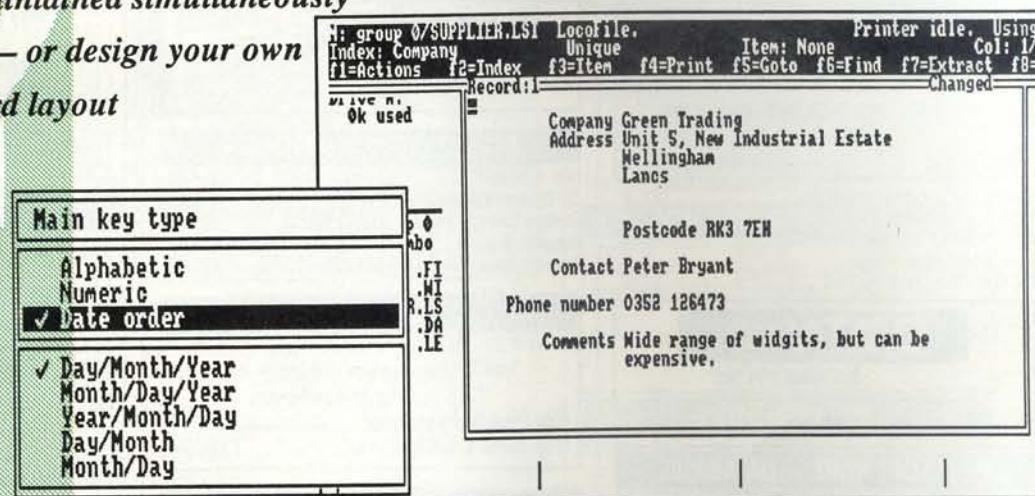
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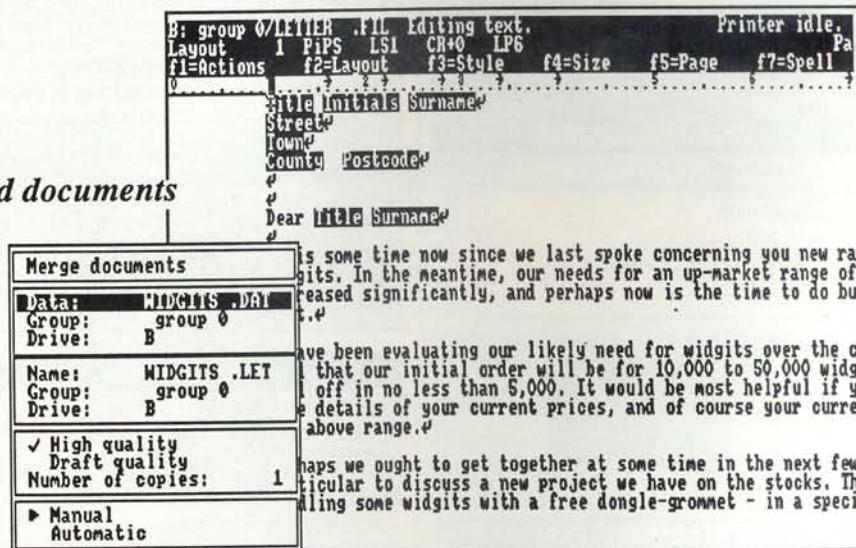
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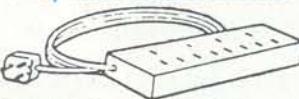
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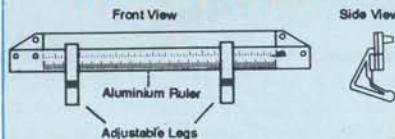


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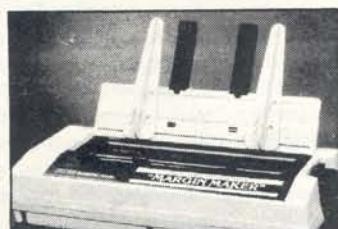
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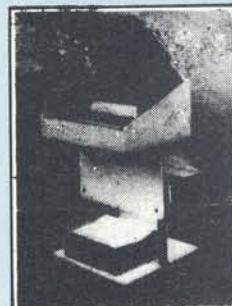
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APPLIANCE OF SCIENCE NOW



Program production with the PCW:
Sharon Bradley visits
BBC Radio 4
to investigate



Science Now is a weekly half-hour program broadcast every Saturday afternoon on Radio 4; its subject matter can cover anything from arrhythmic hamsters to ozone depletion. Alun Lewis has been with the program for four years and is just one of its regular presenters. We went along to talk to him about the increasing role the PCW is playing in the program's production.

Walking along the hallowed corridors of the BBC in Portland Place, London, you're struck by the almost unrelieved anonymity of it all. Security bristles periodically downstairs; upstairs, thickly carpeted hallways swallow all sound. Yet it's the hub

of a communications network that services the length and breadth of the UK; BBC radio's science unit nestles deep within this building and over recent years has provided the working base for a nascent cluster of PCWs.

'When I first joined Science Now,' explains Alun, 'I thought, along with the editor of science programs, Geoff Deehan, that it might be a good idea if we computerized our production system – the advantages to be gained were obvious. It was also important that we did it as cheaply as possible. We had a look at the PCW shortly after it had been released onto the market and it looked ideal.'

Unfortunately the BBC, like most institutions of its kind, was slow in setting the desired chain of events into motion. The unit knew that if they waited for the arrival of their PCWs



through the usual channels, there was every possibility they would end up waiting forever. So, having negotiated a suitably impressive deal on the Tottenham Court Road, three of the program's presenters including Alun, and Geoff, the editor, bought their own.

'We need them anyway', says Alun. 'I'm basically self-employed although I work mostly for the BBC. I brought my 8256 here into the office simply because it's where I do most of my writing – but that's how our PCW nucleus was formed. We could all afford to buy PCWs to have at home and it made sense to have them in the office itself. Once we'd started on the route and proved it, then the BBC said that it was a good idea and started providing them.'

What a difference a day makes

Since the arrival of the PCWs, Alun for one has found that he's gained something like an extra day in the production cycle which he now spends writing. Before, all the scripts were typewritten. This usually meant arriving in the studio to record with manuscripts that had been cut and pasted out of all recognition – not to mention all the equally undecipherable hand-written messages.

'We used to have to give the script over at ten in the morning for it to be ready to read in the studio at three. I was literally handing over the pages exactly as I'd written them for someone to type. Then they'd come back to me for further alterations.'

'Our job is to sit in the studio in front of a microphone and read clearly what is on the page. To do that job well, you require a nice, clean white script, with double-line spacing, a certain margin width, handy-sized bites and sentences that haven't been broken in awkward places. It really is very unnerving seeing a spelling mistake when you're actually reading on air, no matter how many times you saw it beforehand. It really jumps out at you.'

Now, says Alun, he can spend longer getting the interviews together and the end result is that deadlines can



Alun Lewis of the Science Now team explaining how the PCW has reformed their script production cycle

be pushed up. He doesn't feel that he's working less; what he does, however, is better in the given time. Neither has the PCW revolution saved them any money: 'Our secretarial staff are the same; but we've saved them hours of really dull copy-typing and having to translate my ghastly handwriting into good clean readable script. Now we can start printing out the script at half two to go into the studio at three.'

Sweet memories

The team originally started off with 8256's, although it wasn't long before they decided to carry out a memory upgrade. This is a fiddly operation at the best of times, but one which progressed smoothly in the capable hands of editor Geoff Deehan. (If an electronic engineer can't do it, then who can?)

Alun recalls the operation with much amusement: 'We anti-static sprayed the carpet (integrated circuits are very susceptible to high voltage) and nobody was allowed to touch Jeff. It was actually quite exciting passing things through into this marvellous static-free zone. The machine actually proved to be a lot more efficient; it was only a question of time before we started adding second disc drives.'

The team tends to work in both LocoScript and Protext; Alun, who considers himself to be 'a bit of a renegade' on this score, prefers Protext's speed, although Geoff, who replies to a lot of listener correspondence on his 9512, particularly likes LocoScript's comprehensive layout features: 'I'm a great LocoScript fan except for the interminable time it takes getting places. It's great for doing short things, and certainly a completely naive user could walk up to it and be printing stuff out in fifteen minutes – just like the manual claims you can.'

Alun has adapted a mail-merge routine under Protext which enables him to make a few significant shortcuts in his script production. The format of a script fly-leaf rarely changes; on it are recorded the presenter's name, the name(s) of the speaker(s) interviewed, the duration of the inserts, the recording date and various other details. Having saved the static information prompts, all that remains for him to do is type in the variable detail after the relevant prompt appears on the screen.

Hello, Good Evening and blocks

Similarly there are certain 'prompt blocks' that never change during the course of the script itself: Interviewee's opening words, Interviewee's closing words, Duration of insert and so on. And a block like this will reoccur wherever an interview has been inserted into the script.

The finished result is neat and clear. As Alun points out, 'It saves me having to repeatedly type what constitutes about as much as a third of the finished script.'

As far as hardware is concerned, the unit makes ample use of the two most hardwearing makes of daisywheel and dot matrix printer available, the Juki and the Epson. They use the Juki to print out the final version of the script that the presenter will be taking into the studio with him. Not even the best dot matrix can provide the clean crisp contrast of black on white needed to read with confidence into the microphone. On the other hand, the Epson dot matrix is great for producing rough drafts of a script – in case anyone needs to take a copy home, for instance.

In the BBC's science unit, the PCW has made itself indispensable. And it's increasingly making its presence felt in other departments. About the only place where you won't find them is in the newsroom which has its own dedicated computer system. As Geoff Deehan comments: 'If you walk around the BBC offices you'll see that PCWs are rapidly becoming a *de facto* standard now for low-cost word processing. It's inevitable when you have a machine that does a pretty good job at a pretty reasonable price.'

The art of writing programs

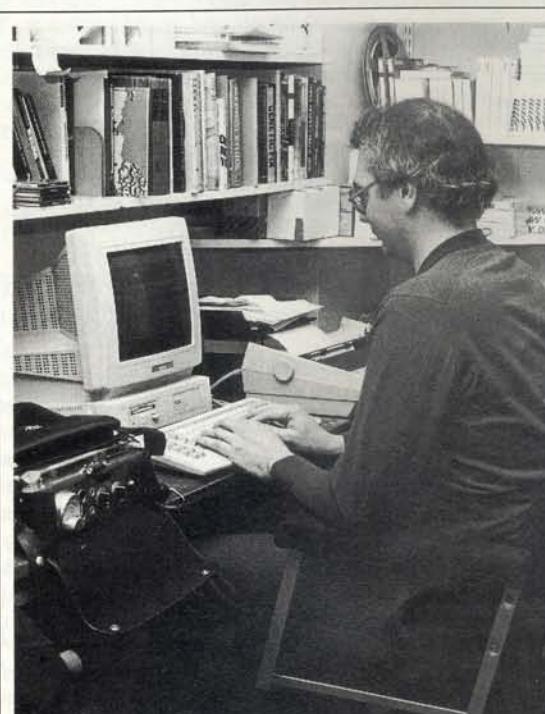
This particular unit alone is responsible for all the science output that can be heard on Radios 1, 2, 3 and 4. Science Now and Medicine Now are broadcast on a regular weekly basis from here along with Radio 3's Spectrum. Alun, along with Peter Evans and Georgina Ferry, are Science Now's main three presenters whose collective qualifications span various of the life sciences to civil and electronic engineering.

The department now has ten PCWs (most of them upgraded 8256s and 9512s) dotted throughout its offices and these are shared between five or so presenters and their respective producers; together a presenter and a producer put together one half-hour

program a week.

'The idea', says Alan, 'is that when you make a program you work as a team. We go out and record two or three interviews during the course of a week: then I, the presenter, will sit down and knit a script around those inserts using the PCW. I hand the disc over to my producer for editing and when that's done the script is ready to be printed out.'

The final element to the program's production takes place while the program is actually going out on the air. Someone sits at home with a cassette and later transcribes the whole lot. In the final transcript nothing is left out; even the inserts are reproduced verbatim.



Geoff Deehan, the editor of science programs, at his 9512: 'LocoScript's ideal for coping with all the listener correspondence we get.'

Tuning In

You can tune into Science Now on Radio 4 at 4.30pm (FM 92.4 – 95.8, LW 198 kHz). It's repeated on Monday evenings at 7.45 pm.

Office changes

Mini Office owners can use the OFFICE.COM program from their master disc to run any program, not just Mini Office's. The hidden files on the Mini Office disc (type DIRSYS) are called WORD.COM (word processor), DBASE.COM (database), SHEET.COM (spreadsheet) and so on. This means that when you run Mini Office and select, say, the word processor module, WORD.COM is run. If you rename Protext WORD.COM and copy OFFICE.COM to the same disc, Protext will be run from the main menu when you select the word processor. (See last October's 'Special Menu' tip-off).

The versatile Mini

Increasingly, the science unit is venturing into the realm of spreadsheets. So far, Geoff (whose job it is to work out the unit's budgets) has been particularly impressed with Mini Office's spreadsheet module.

He explains 'Once we've worked out a program's expenditure, it gets sent off to the central accounting office. Sometimes, after a while, a report comes back to us from them saying that a mismatch has been found between their figures and ours. When that happens, the mismatch has to be identified. The only spreadsheet we could find that allowed us to do a printout with just one cell highlighted was Mini Office's. It's a very useful feature to have, especially if you're doing

updates of previously issued sheets. Certainly I can't think of any other package I've seen which allows you to do that. Mini Office is very clever in some parts; unfortunately not in all. The only thing wrong with it really is its awful word processor.'

Between them, Alun and Jeff 'replaced' Mini Office's word processor module with Protext. 'It just didn't offer us the quality we need and, frankly, it's not very friendly to use anyway.'

The team doesn't often need to use comms packages, but on the odd occasion when electronic mail is required to collect a colleague's script they've found Mini Office's comms package a friendly one to use.

New PCW software from ARNOR

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THE MIGHTY MACRO

Macros can make short work of long listings. Steve Patient continues our machine code tutorial series

Mac is short for Macro Assembler, good: but what does that mean exactly? All assemblers will take an assembler listing and produce some kind of output from it, either machine code proper, a hex file or some kind of relocatable code (wait for it – that comes later), but some can do a great deal more.

Because machine code is extremely simple you need to write a lot of it to do anything useful. Writing code quickly becomes repetitive with the same routines, or small variations on them, being used in many different situations. For example most of the BDOS calls need to be wrapped in PUSH and POP instructions to preserve the values in the registers as in this call which allocates a buffer at 5000H for CP/M to read into and write from when using the disc:

```
PUSH PSW
PUSH H
PUSH B
PUSH D
LXI DE,5000H
MVI C,26
POP D
POP B
POP H
POP PSW
```

All this typing quickly gets tedious; how much better if we could just type something like DMA BUFFER or DMA 5000H and have it all happen automatically. Well Mac allows you to do just that by writing the routine as follows:

```
DMA MACRO NEWBUF
PUSH PSW
PUSH H
PUSH B
PUSH D
LXI D,NEWBUF
MVI C,26
POP D
POP B
POP H
POP PSW
EMDM
```

It now becomes a macro and can be recalled at any time by putting the new pseudo opcode DMA in the listing followed by the value required for NEWBUF. Mac will replace your single line with all the code between the macro start and the ENDM statement and also replace the word NEWBUF after D with whatever you put after DMA. Thus if you write DMA 8500H in the listing then that will become LXI D,8500H in the final expanded text, and it doesn't even have to be a number, it could just as easily be a label or even an expression like BUFFER+256.

Accept no substitutes

The macro definition thus begins with the name of the macro. In the above case, DMA followed by the word MACRO and finally a list of dummy parameters. When the macro is called the dummy parameters will be replaced with either a label identifying a number, an expression or an

The Mac assembler is a far more powerful utility than is generally realised. This fact is carefully concealed behind those bland words 'This utility is not covered any further in this manual'...

Mac speak

Like most CP/M utilities Mac has various options available to it at assembly time. The options follow a single \$ sign after the name of the listing, for example MAC FIDDLE \$AB HM +S +M.

If M is the current drive then the defaults are: ASM and LIB file assumed to be on M. The HEX, PRN and SYM files sent to M with no local macro symbols in the SYM file. If you want a file looked for or sent to a different drive then the relevant file is specified with a letter and the drive letter follows:

A Source of ASM file.
H Destination of Hex file.

L Source of LIB files.
P Destination of PRN files.
S Generation and destination of SYM file if this is +S then the SYM file is added on to the PRN file.
M Macro listing in PRN file +M if required -M if not.
Q List LOCAL symbols +Q if yes -Q if not.

Examples:
\$AA +M Take ASM from drive A and list Macros in PRN file.
\$PB +Q LA Put PRN file to B, list local symbols and take LIB files from A.

actual number which will be used to replace the text in the macro identified by the dummy parameter, all as in the example above where 8500H will replace NEWBUF.

Once this macro has been defined it can be inserted anywhere in the listing by typing one line, a saving of 9 lines of typing in the listing. The macro can be defined at the beginning of the listing or part way through just so long as it is defined before it is used. Even better, it can be defined in a separate file.

All of the BDOS calls you normally use can be written as macros and collected together in a file. This should be a simple ASCII text file written as if it were an ordinary assembler listing. It should have a filetype LIB, for example BDOS.LIB and to use it you would add the pseudo opcode MACLIB BDOS as the first line of the actual program listing.

Mac isn't doing anything magical, it's basically a straight text substitution, a kind of find and replace. Where Mac scores over a word processor is that it can include parameters each time the macro is called which will subsequently be placed in the body of the macro. These parameters are defined as a list separated by commas following the word MACRO. Your list will replace the identifiers (the text which matched the dummy parameters) in the macro until they run out. If there aren't enough parameters then the rest of the identifiers are left unfilled.

Library card

The sample library, MACRO.LIB contains 2 macros. The first prints out a message and the second provides a delay depending on the value of NUMBER and NUMB2. Since we will probably want to use them more than once in a listing the second line of each macro contains a pseudo operand called LOCAL which will force Mac to change the labels to something unique each time the macro is called. If this didn't happen the macros would be using each others addresses and getting mixed up.

More on macros

The reason for the double semi-colons in the MACRO.LIB listing is not shabby hands but yet another instruction to the assembler. If there are two semi-colons then Mac will not include the comments when it expands the ASM file.

To get a PRN file showing all the macros as they appear once Mac has finished doing its work use the command line MAC (your filename) \$+M – this forces the listing of macro lines as they are processed and allows you to see exactly what happens.

There are a great many more macro processes available to Mac. For a full discussion of Mac with copious examples, along with all the other utilities and indeed the entire of CP/M plus see the imaginatively named Digital Research Programmers Utilities published by Digital Research and available at enormous expense (£43 inclusive of postage) from Oxford House, Oxford Street, Newbury, Berks RG13 1JB.

MACRO.LIB

```

PRINT    MACRO    MYWORD      ;;BEGIN MACRO DEFINITION
LOCAL    WORDS,SENDIT    ;;LOCAL VARIABLES
PUSH    PSW
PUSH    D          ;;SAVE ALL THE REGISTERS
PUSH    B
PUSH    H
JMP    SENDIT      ;;JUMP OVER TEXT
WORDS    DB          ;;WHERE THE MESSAGE WILL GO
DB      0DH,0AH,'$' ;;$ is BDOS 9 STRING TERMINATOR
SENDIT: LXI    D,WORDS    ;;ADDRESS OF STRING
      MVI    C,9        ;;BDOS 9
      CALL   005        ;;CALL BDOS
      POP    H
      POP    B          ;;RETRIEVE THE REGISTERS
      POP    D
      POP    PSW
      ENDM      ;;END OF MACRO
;

LOOP    MACRO    NUMBER,NUMB2  ;;GET A NUMBER
LOCAL    ONE,TWO,FIN1,FIN
PUSH    PSW
PUSH    H
PUSH    D
LXI    H,NUMBER      ;;SAVE CHANGED REGISTERS
DCX    H
MOV    A,H
ORA    L
JZ     FIN          ;;ARE H AND L ZERO?
PUSH    H
MVI    A,NUMB2      ;;END IF HL COUNTER ZERO
      ;;LOAD OUTER LOOP
      ;;SAVE COUNTER
      ;;INNER LOOP
TWO:    DCR    A
      CPI    0          ;;IS INNER LOOP ENDED?
      JZ     FIN1        ;;IF IT IS BACK TO OUTER
      JMP    TWO         ;;ELSE ROUND AGAIN
      ;;RETRIEVE COUNTER
      ;;ROUND AGAIN
FIN1:   POP    H
      JMP    ONE         ;;POP REGISTERS
      ;;ROUND AGAIN
FIN:    POP    D
      POP    H
      POP    PSW
      ENDM      ;;END OF MACRO
;

```

This is the macro library listing and should be an ASCII file with a filetype of LIB. This has absolutely nothing to do with the utility LIB.COM of the same name.

The end

Knowing how to finish a program can be a problem when you start machine coding. In fact there are three methods. The easiest is a RET for which there is no corresponding CALL instruction. Each call puts the return address on the Stack. If there was no CALL, and nothing else left over on the Stack, then the stack will have a pair of zeros at its base, this causes a JMP 0. You can also do a JMP 0 explicitly. The third method is to load reg C with 0 and CALL 0005. This is BDOS call 0 known as System Reset.

The first macro is a routine to put a message on the screen and then give a new line. You used a similar routine last month while familiarising yourself with Mac and Hexcom. It is called PRINT and has a single dummy parameter called MYWORD. To use it you include in your listings the line:

PRINT 'SAY WHAT YOU LIKE'.

It really is that simple.

The second macro is called LOOP and is slightly more complex since it has two dummy parameters. The macro is a variable delay loop, the sort of thing you might use to leave a message on the screen for a set period of time or to wait for an input before going ahead and doing or not doing something.

It is in fact two loops, one nested inside another. The inner one is controlled by the value in A, the parameter called NUMB2. In the example this is given a value of 255 decimal, the maximum value that can be held in a single register.

Looping the loop

In the line with the comment INNER LOOP the value is moved into A, it's decremented in the next line and then compared with zero. Only values in A can be compared so if you need to compare a value in some other register it first has to be moved to A. If A is zero then the routine leaves the inner loop and returns to the outer loop with JZ FIN1 otherwise it goes back around and decrements A again.

The outer loop uses the register pair HL to hold a value up to 65536. You can experiment with different values and will find the delay can be altered from virtually nothing to over 2 minutes.

It works in exactly the same way as the inner loop except that since you can't compare the HL pair with zero directly subterfuge is resorted to. The trick is to load A with one of the registers, in this case H, and then OR the L register with A. This works just as it would in Basic, if either H OR L contained a set bit (a 1 rather than a 0) then the corresponding bit is set in A. Only when both H and L are all zeros is A set to zero and the loop finished.

The other point to notice is that the value of the outer loop, in HL, is saved on the stack before the inner loop is entered. This isn't strictly necessary but has been done to illustrate good programming practice, ie never assume any value is safe unless you've made it so since something, somewhere is waiting to stomp all over it.

Your macros, once written and debugged, can be forgotten about – you only need to remember how to use them. The second much shorter listing shows how this is done.

The first line instructs Mac to read in the Macro library, this is stored ready for use. The second line sets the starting address for the code as usual but then our first new pseudo opcode is used. This says PRINT 'HELLO' – note that the message has to be wrapped in single quotes since it will actually be used after a DB pseudo opcode when Mac expands the macro.

The next line is LOOP 10000,255 which sets the delay loop and this is followed by a second use of our PRINT macro to prove the delay occurred. It just remains to invoke CP/M with a RET instruction and tell the assembler that there isn't any more with the END pseudo opcode.

It's easy to see that carefully constructed macros can make writing machine code nearly as straightforward as using a high level language but without the speed and memory space penalties. As a bonus you can design the macros to suit the job exactly.

***** DEMO.ASM - HOW TO USE A MACRO *****

MACLIB	MACRO.LIB	;READ IN MACRO LIBRARY
ORG	100H	;CODE GENERATION FROM 100H
START;	PRINT 'HELLO'	;USE PRINT MACRO TO SAY HELLO
	LOOP 10000,255	;USE LOOP MACRO TO WAIT 20 SECS
	PRINT 'AND AGAIN'	;USE PRINT MACRO AGAIN
	RET	;WARM START - BACK TO CP/M
	END	;NO MORE CODE THANKYOU

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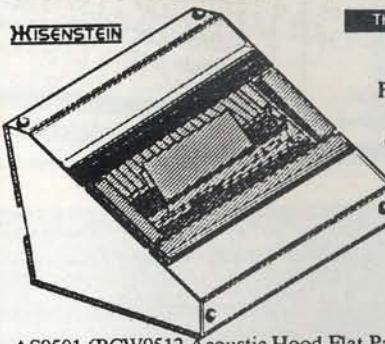
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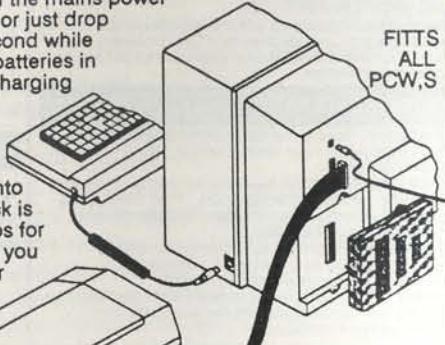
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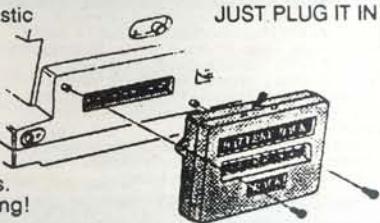
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HISTORICALLY SPEAKING

The noble activitie called 'comms' is oft faid to be the most CONFUSING parte of computynge; to which end, is included herewith the fyrst in a GENTYLLE INTRODUCTION to computynge by wyre by Stephen Patient, Esq.



Illustration by Richard Blake

Perhaps the first famous example of long distance communications was when the Athenians met the Persians on the Plain of Marathon in 490 BC. They won against great odds and despatched Pheidippides hotfoot to Athens to announce the victory. Although it was only twenty five miles or so the journey took several hours and the strain killed him; rumour has it the only part of the message which came across was 'victory is o=^G^S%'. Now we would watch the battle as it happened and take the technology involved for granted.

Until the coming of electricity people had little real choice when it came to sending information over long distances. Letters were expensive and slow as they had to be carried by horseman, and signal fires, though fast were major logistic undertakings suitable only for war; the province of governments. Most people throughout history have

Communicating with other people is one of the basic human drives so it isn't surprising that we keep inventing new ways to do it. With so much of what we want to say now on computers it makes sense to learn how to let them speak.

communicated information via the spoken word carried on foot.

Fast access to information, even if it's only phoning directory enquiries, a spares department or getting a bank statement instantly, is one of the freedoms we tend to underrate but one that relies completely on computers. The speed of access reduces the cost of getting at the information and makes the service practical.

In this country you are free to send any kind of information you like. One of these pieces of information is your name, address and various other details of your life which are sent from one computer to another on average at least five times a day, more if you are active in business.

Freedom calls

Generally, computers and their ability to store and disseminate vast quantities of information with great speed have found their greatest application so far in business and politics. Via business they have helped give us freedom. Freedom of choice, easier credit, access to information, rapid response to the market and, over the last few decades, greater economic stability than at any time in history.

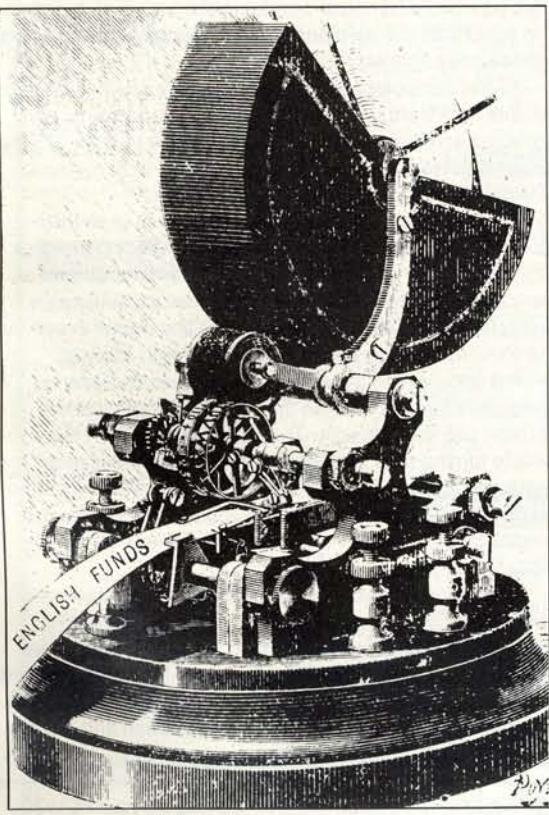
In politics the effects are harder to quantify. If you and your government have access to the same information then there are gains all round. If only the government has access then information can be a weapon of oppression – George Orwell's *1984* was based on this theme. That's always been true but computer communications make it more important. Information must be freely accessible in a free country.

In the past few private citizens sent messages across the country when it involved hiring a man and his horse but the arrival of Rowland Hill's penny post in 1840 brought the letter within reach of everyone, and a new surge of interest in communications (anywhere in the Empire for the same rate). It isn't enough for something to be possible: it also has to be practical and affordable to become attractive.

The phrase 'knowledge is power' remains true despite repetition. Without understanding how computers communicate, then this power, as well as an interesting pastime, is denied you. You live in a world where some machines can process more information in a minute than a human can in a

Speak nicely

It is illegal to send offensive, obscene or menacing material over the phone lines or to cause 'annoyance or anxiety by uttering falsehoods'.



The first commercial machine for receiving electronic communications

A note in code

Morse code uses dots and dashes to represent data but while it is ideally suited to human use – commonly used letters requiring less dots and dashes than uncommon ones – machines don't find it so friendly.

For the Telex Baudot code is used, a five bit code named after J M E Baudot, a French engineer who died in 1903. Baudot code is also known as International Alphabet No 2. It does not come in very fast; typically Telex works at under 300 bits per second (Baud) – only half a dozen letters.

Tapping out Morse code on a telegraph

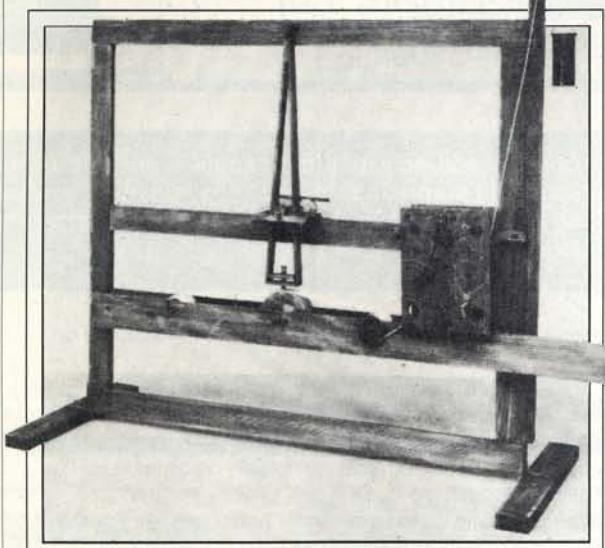
key meant that the operators had to be trained in a new discipline. To enable anyone who could recognise letters (not so common in 1890) to use the telegraph various methods of increasing complexity were designed around standard typewriter keyboards.

Those urgent telegrams Sherlock Holmes received would have arrived at the Post Office via such a telegraph system as a thin strip of letters on a roll of paper. These would be cut up, stuck down on a blank form and rushed round to Baker Street.

Post Box

Thanks to the Bath Postal Museum for their help with historical detail

The ticker tape machine, once used for receiving up to the minute financial information



lifetime, and share that information among themselves; a power that affects us all. How did this invisible world of computer processed information come to be so important?

Electric dreams

The discovery of electromagnetism and the invention of the solenoid in the early part of the nineteenth century gave a way of communicating rapidly over great distances. A solenoid is a simple device involving no more than a coil of wire with a steel bar inside and a switch connecting the coil to a battery. Whenever the coil is connected the bar would be pulled into the magnetic field. If it had a spring to pull it out again then here was a device that could be used to pass signals.

The switch and the magnet could be separated and still work, after all, your household light switches aren't next to your ceiling lights. They might be many miles apart, even hundreds of miles. A man in Tombstone could close a switch and another man in Laramie would see an iron bar move. In a single step men had gone from communicating at the speed of a horse – about 15 mph – to the speed of light – some 186,200 miles per second.

Samuel Morse invented the commercial telegraph and also the code to transmit numbers, letters and punctuation that bears his name. Owing to the physical limitations of the system – it only transmitted two states, on or off – all information had to be encoded into some form the system could cope with. To transmit all the letters of the alphabet as unique signals would have needed 26 different states; off, a bit on, a bit more on until it reached the final level. This wouldn't be that reliable even now and a hundred years ago was impossible.

Originally the message would have been set as metal

type in a device called a *Portrule* into which the metal dots and dashes of Morse code were physically placed. Then a crank on the Portrule had to be turned to draw a contact over the raised dots and dashes. While the contact touched the raised portions of metal a distant coil attracted a steel bar with a pen attached to draw marks onto a strip of moving paper thus reproducing the original dots and dashes. In the days before all technology needed jargon the marks were called 'marks' and the gaps between them were 'spaces', terms still used today in data transmission.

Interestingly this analogue representation soon gave way to the telegraph key so familiar from the Westerns in which two close clicks represented a dot and two separated clicks were sent for a dash. This proved far faster in use.

The Telegraph and its variants held sway for more than forty years until the coming of Alexander Graham Bell's telephone (from the Greek for *far* and *sound*), patented in 1876. But even by 1896 the cost of a call still lay outside the means of most people. The New York service cost \$20 per month which was half the average monthly income at the time.

A short intermission

From the point of view of data transmission nothing much changed until the 1950s when the first electronic computers were built. In those days the computer was one thing and the *terminal*, through which mere mortals communicated with it, another. These terminals did not have to be near the computer and were usually located at a safe distance (for the safety of the computer – not the operator), sometimes whole streets away.

While the computer itself might work rather fast, people's little fingers didn't; information was transferred at about half a dozen characters per second to communicate with the machine itself.

These terminals were frequently teletype machines as used for Telex. The results of hitting the keys were seen only as capital letters and numbers on a paper roll. In those days getting the computer to do anything at all proved quite hard enough without having to pander to the whims of the users. Old prejudices die hard and some computer manufacturers still feel the same way.

As the computers became both more powerful and more reliable they were used to do useful work and some collected enormous amounts of information to work on. They became databanks and data processors – and as you already know, knowledge is power.

Business proved willing to pay for access to all this stored information and processing power. Selling it made sense; it would help defray some of the enormous cost of the early computers, but selling it also meant making computer communications both faster and easier to use than the existing systems based on the telegraph allowed.

The telephone lines were the way forward. So far computers had not needed the voice lines, and indeed, couldn't use them directly. The Post Office doesn't like people turning their lines on and off to send messages preferring them to send sounds as a rapidly varying current on the line. The answer lay in the *modem*, which stands for *modulator/demodulator* and is the point where all comms discussions usually begin.

All a modem does is to produce tones from marks and spaces which it can put onto a telephone line, and take tones from a telephone line turning them back into marks and spaces for a computer. At that point it is straightforward. The complexity comes from the need for more speed, two way transmission, more speed, error detection and more speed still... ■

● Next month: getting started – comms on your PCW!



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THAT'S YOUR LOT

The end of an era – the eleventh and last part of the Mini Office tutorial series. Vital information you won't find in the manual!

Having followed this lucid series from part 1, you're now thoroughly at home with the workings of all five of Mini Office's modules. Here's a list of the ten most important things you need to know...

Book him, Dano

Sigma Press (0625 531035) publish a good book by John Hughes for £11.95 covering all the modules in Mini Office.

Story so far

The previous ten tutorials in this series have covered:
 Iss. Month Subject
 19 Apr 88 Database: setup, data entry, formulae
 20 May 88 Database: sorting, selecting and printing
 21 Jun 88 Mail merging
 22 Jul 88 Graphics module
 23 Aug 88 Word processor: basic editing, printing out
 24 Sep 88 Word processor: blocks, layouts, features
 25 Oct 88 Communications
 26 Nov 88 Spreadsheet – what they're for, formulae
 27 Dec 88 Spreadsheet – replicating, constructing tables
 28 Jan 89 Spreadsheet – windows linking with graphics module

Being familiar with the workings of a program by itself is often only the beginning of the story. What happens then is that you start asking questions like *how can I use Mini Office files in LocoScript?* and vice versa, or *how can I use LocoMail on the names and addresses in my Mini Office database?* and so on.

According to Database, the distributors of Mini Office, 'everything you need to know is there in the manual. Somewhere.' Hmmm...

1. Mini Office to LocoScript

Mini Office's word processor offers considerable speed advantages over LocoScript and if you're into bulk text writing it can be very convenient to put the text together in Mini Office, polishing up the structure and words until the word count is right. To print out however you may well want to use LocoScript, which prints in justified proportional spacing much quicker. Also Mini Office is devoid of any fractions, and it looks rather naff talking about 'five and a quarter inch discs' or '5.25 inch discs' and such like all the time! Loco 2 offers lots more characters such as mathematical symbols and Greek and Cyrillic of course.

Save your Mini Office document as usual. Go into LocoScript and in a new document on the same disc as the Mini Office document 'insert text' ([f1] Loco 2, [f7] Loco1). The text of the Mini Office document appears (cut out the spurious initial characters) and can be polished up by adding bold and italic commands and so on. Any bolds, italics, tabs and layouts from the original are ignored. If you want fancy characters (say) put a character you aren't using elsewhere in the original in place of a half – a \$ sign say – and in Loco use [EXCH] to swap every \$ for 12.

A Mini Office document can be inserted straight into LocoScript

Drive: A File: ANYTHING.DOC INSERT Page: 14 Lines: 51 Size: 1K 14 lines Marker: 1 Free: 95K 6126 lines f1:Save f2:Save Block f3:Page Mode f4:Wide Mode f5:Compact f6:Remove Codes f7:Merge f8:...

STORY
 We now spend as much on the Queen as we do on defence. So how would our Royals be able to defend themselves in the event of an attack from foreign royal personages?

The most likely scenario, according to British Defence officials, is that Queen Juliana of the Netherlands, with relatives of King Haakon of Norway, would launch an attack on the British southern coasts in the small hours of the morning. Our monarchy would respond with a Defence Force consisting of the Queen and Prince Philip at the nerve centres of London and Cheltenham, and further strengthen our defences by deploying several minor royals – Princess Michael of Kent, a few Dukes and Marchionesses – at the Cinque Ports.

Experts fear this could escalate into a global monarchical conflict, with the probable entry of descendants of ex-King Zog of Albania and Emperor Hirohito of Japan into the scenario.

File: ROYALS.DOC Editing text
 Page: 1 File: LS1 CR+0 LPS
 f1=Layout f2=Style f3=Size f4=Page f5=Spell f6=0
 Mini Office PCW Word Processor MO
 DOC RISPR-8000TIP4 SCRS5 E1F14ROWENA Jwxyz{1}!WzTWe
 now spend as much on the Queen as we do on defence. So how would our Royals be able to defend themselves in the event of an attack from foreign royal personages?
 The most likely scenario, according to British Defence officials, is that Queen Juliana of the Netherlands, with relatives of King Haakon of Norway, would launch an attack on the British southern coasts in the small hours of the morning. Our monarchy would respond with a Defence Force consisting of the Queen and Prince Philip at the nerve centres of London and Cheltenham, and further strengthen our defences by deploying several minor royals – Princess Michael of Kent, a few Dukes and Marchionesses – at the Cinque Ports.

2. Loco to Mini Office

To load a LocoScript document and work on it in Mini Office, make an ASCII file of it ([f1] Loco 2, [f2] Loco 1 in the disc manager screen) and load that as normal in Mini Office. All fancy characters (Greek, Cyrillic, maths symbols etc.) and bold/ italic/ layout commands are lost.

3. LocoFile, LocoMail and the database

If you have a list of data in your Mini Office database you can use it in LocoMail and therefore LocoFile, which works happily with LocoMail data files. This is useful if you want to use LocoMail to do a mailshot (to use its superior calculation and conditional facilities, for example) or want to put a name and address file from Mini Office into LocoFile.

Load the data file in Mini Office's database, create a mail merge file and save. It helps for later on if you make the *final* field a number field preceded by a symbol such as \$. Leave it blank in every document (it appears as \$0.00). You can use this later to separate the records from each other when you put this file into LocoScript.

Having saved the mail merge file ADDR.MRG say on a disc, run up LocoScript and insert the disc with ADDR.MRG on. Create a new document, 'insert text' ([f1] Loco 2, [f7] Loco 1) and give the file ADDR.MRG as the one to insert.

The names and addresses appear. Edit out the junk at the top. Now to be a proper LocoMail or LocoFile data file, each record – ie. each name and address for example – must be on a separate page. This is where the \$0.00 business comes in. It appears in this document as \$0, so you can [EXCH] all [RETURN]\$0[RETURN] for [ALT][TAB] automatically to the end of the document. This puts in the required page separations for you.

There's no equivalent reverse process, unfortunately. The makers of Mini Office have thus ensured that once you've upgraded to another database you can never return to Mini Office!

Used: 3 Free: 1570 Size: 220 Current
 Short & Blount Pencils plc
 26 Stubb's Lane
 Brittle Point
 Below Par
 Cornwall
 Par 74651 1664.82
 0

1. One record from the Mini office Database

M /DOCUMENT.000 Editing te
 1 F10 LS1 CR+0 LPS
 ons f2=Layout f3=Style

03 Mail merge by R.P.Fra
 lts
 53 Patchey Lane
 Leek
 Staffordshire
 E
 Leek 7655524
 129.00P
 100
 Long & Sharp Pencils plc
 Graphite House

/DOCUMENT.000 Editing te
 1 F10 LS1 CR+0 LPS
 ns f2=Layout f3=Style f4=Size

Blottwell Biros Ltd
 53 Patchey Lane
 Leek
 Staffordshire
 E
 Leek 7655524
 129.00P
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 Graphite House
 London
 SW1 4RF

2. The mail merge file inserted into a Loco document

3. The file tidied up, now in LocoFile/Locomail format

4. Spreadsheet export

One of the big problems with the spreadsheet is that it can't sort information into order. The nearest you can get is to make a file of the information in a spreadsheet and use a BASIC listing to sort it into order. You can't then put the sorted information back into the spreadsheet though and while it would be possible to convert the resulting file into a form that SuperCalc could import, for example, it would be tedious.

Before running Mini Office up you put in your CP/M systems disc and type **PUT PRINTER TO FILE A:TEMP**. If you don't have a few k of space on this disc you'll have to make up a copy disc with **PUT.COM** on it and **SHEET.COM** from the Mini Office discs plus all your **.SPR** spreadsheet files. Run up Mini Office from this disc by typing **SHEET[RETURN]** and select the spreadsheet as usual. Load the spreadsheet and print the sheet or a part (window) as you wish. You probably want 'no' headings. The printer remains silent; all the output which would have gone there has been sent to the file **A:TEMP**.

Leave Mini Office and go into a word processor such as LocoScript or ProText (or even Mini Office). Load the file **A:TEMP** ('insert' it into an existing document in LocoScript). Delete the junk at the beginning and end. The file comes across as a straight image of what would have been sent to the printer, with each item in the sheet separated by spaces. If you want to import this sheet into some other program you'll have to change all the rows of spaces into appropriate separating characters for the program. Can be done by doing repeated **[EXCH]**s of two spaces for one until only single spaces remain and finally **[EXCH]**ing all single spaces for a comma or whatever but this is very slow in LocoScript.

5. Search me

The word processor's 'replace' function is very fragile and tends to crash at odd moments. The worst thing however is that you can't strip out items, because you can't replace things by nothing – for example, suppose you want to remove all italic commands. What you should be able to do is replace all italic codes by nothing, but if you do that Mini Office replaces all italic codes by a space. You have to find ways round it – here, for example you would replace all (space)italics by a space and all italic(space)s by a space.

6. Quick ways round

You don't have to go through the main menu of Mini Office to select a particular program. Just typing the name of the respective module at the **A>** prompt of CP/M will run the program. Typing **WORD** followed by **[RETURN]** runs up the word processor; similarly **SHEET** for the spreadsheet, **GRAPH** for the graphics, **COMMS** for the communications and **DBASE** for the database.

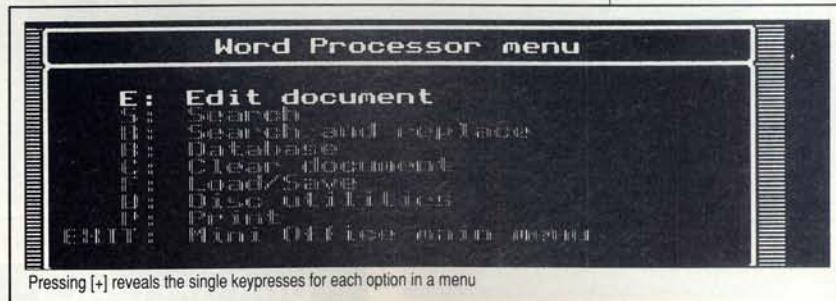
7. Quick ways round (2)

Plus there's the old chestnut of selecting any item from any menu by pressing one letter, usually its initial letter, instead of using the cursors and **[ENTER]**. **W** for example runs the word processor from the main menu and **P** prints a document or spreadsheet in the 'print' menu. To see what letters to press, hit **[+]**, and to hide them press **[-]**. The trick works whether the letters are shown or not.

8. Playing footsie

Footnotes can be put in a word processor document by using footers. You're allowed any number of footers in a document (ie. text that is printed at the bottom of a page). When you want to put a footnote in somewhere, in the line after the reference put **[ALT]F** to end the footer and then **[SHIFT][ALT]F** just before to begin it. Type the text of the footnote between these two markers.

About one page after this, turn this footnote off (or else



it'll appear on all subsequent pages) by putting a blank footer, ie. **[ALT]F** preceded by **[SHIFT][ALT]F**.

You probably will want to put the footnote in a small pitch size – on a 9512, a **[SHIFT][ALT]Z** before and after stops the printer and allows you to change the daisywheel.

Your footnote is normally limited to three lines but you can allocate more space in the 'page format' menu ('print' from the main menu followed by 'set up printer') for the footer in the 'bottom gap'. For single sheet printing set the bottom gap to 13.

So long as subsequent editing doesn't push the blank footer which turns off the footnote past the next page, or bring it back on the same page as the footnote (in which case you'll have to move it to a page away again) your footnote will always be in the right place even if you make changes to the document.

9. 8512 owners: Mini Office from B

To get Mini Office Professional and all the modules to load and run from drive B you first need to copy all the program files to a drive B disc. With the CP/M disc in A type **PIP[RETURN]** and then insert the Mini Office disc in B, the disc to hold all the files in B and type **B:=A:*.*[RV]**. Repeat for all three sides of the Mini Office disc keeping the same disc in B of course.

Using Mini Office create an ASCII file called **MOP.SUB** with the following lines:

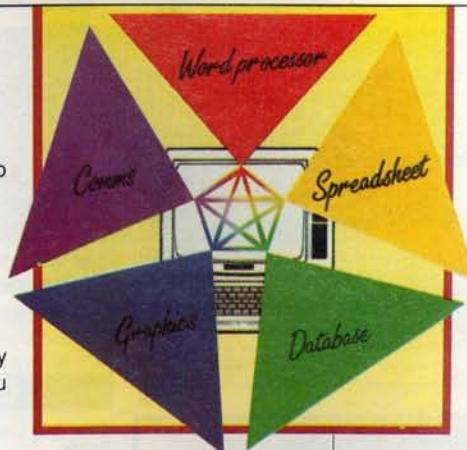
```
B:  
OFFICE  
A:  
Make sure the files SUBMIT.COM and SETDEF.COM are on the disc you usually boot CP/M from and either create a PROFILE.SUB file containing the following line, or insert it into your existing PROFILE.SUB file:  
SETDEF B:,A:,M:[ORDER = (SUB,COM) TEMPORARY = B:]
```

You will now be able to run the package from the B drive by typing **MOP** at the **A>** prompt or have it auto run by putting **MOP** as the last line in the PROFILE.SUB and having the relevant disc in B.

The only slight problem is that when loading or saving files or showing directories you will be given a default of **A:** unless you use the 'Catalogue Files By' option each time you load up and run a module.

10. 9512 owners starting up

You can make a startup disc for Mini Office containing all the files of the suite on one disc. Just use **8000COPY** on the supplied CP/M disc and follow the prompts (say yes to the 'boot disc' option) ■



Which version?

The current version of Mini Office is 1.07. If you find a bug in earlier versions return it to Database (their address is on the pack) and ask for an upgrade.

Mail merge

Contrary to what we said earlier in the series, Mini Office's word processor can close up spaces in a mail merge letter (ie. allocate just enough space for a name in a sentence like 'Happy Valentine's Day, (name), and best wishes'). Put zero as the length of the string in the skeleton, ie. **D0**. This feature is explained on page 69 of the manual – unfortunately early manuals only go up to page 68!

Flipper

Flipper, the utility which splits your PCW into two halves and lets you run LocoScript (or CP/M) in one half and CP/M in the other, enabling you to flip between the two in seconds without losing your place, doesn't at present work with Mini Office. However, a new version promised soon will do. Details from Software Imperative on 0453 886931.

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HD Design is a small company set up by Howard Davies to provide add-ons for the PCW DTP market. They have been offering new discs full of goodies for various DTP programs at regular intervals although to begin with only Stop Press was targeted.

Currently, there are three discs on offer at £12.50 inc VAT each. The first, HD1 contains 12 fonts suitable for use with both Newsdesk International and Stop Press as well as 60 pieces of clip art. HD2 contains only clip art, once again suitable for both Stop Press and Newsdesk International. HD3 contains clip art for The Desktop Publisher but no fonts.

One unusual feature of the HD2 disc is a collection of borders which can be used to enhance the handbills and announcements so beloved of schools, Cub packs and musical appreciation societies; you may not want to part with £5 for a ticket but you'll love the way they asked.

GET SET TYPESET

£24.99 • Tecnation (23 The Nursery, High Street, Sutton Courtenay, Abingdon, Oxfordshire OX14 4UA)

• Stop Press/Newsdesk

Tecnation are the people who originally wrote Stop Press, among other DTP packages, and they know a thing or two. One consequence of this is that their new package, Get Set Typeset, not only trips off the tongue but is packed with more than just those goodies you might expect.

For your £24.99 you will be sent a rather nice plastic folder containing 3 discs and a slim ring bound manual. The manual contains illustrations of the clip art and fonts, considerable information concerning Tecnation's attitude to the environment (they are in favour of having one so would you all please look after it) and details of the utilities.

There are four programs included with the discs all of which run from CP/M. The first is a rather useful page preview utility which allows you to display just the pagenames or view the page in a reduced form without loading Stop Press. Unfortunately it does overwrite the contents of the M drive when used.

Two other utilities are provided, one to convert clip art from Fleet Street Editor format to Stop Press and the other to handle Newsdesk International format the same way. Well you wouldn't expect them to work the other way.

Going loco

The final utility is an ASCII to LocoScript converter, yes, you read it correctly. Since Stop Press was designed to import LocoScript files anyone using a different word processor has been in the ridiculous position of having to merge files into a LocoScript document before being able to use them in Stop Press.

All programs benefit from after sales support but Stop Press seems to be getting the lion's share of the DTP programming effort. Two new packages are hoping to add themselves to your clip art and font libraries but only one is fully compatible with both Stop Press and Newsdesk International. Which one will grab your interest and your cash?

Tecnation have provided an ASCII to LocoScript converter to do away with this irritation, although they don't claim the conversion is good enough to actually fool LocoScript itself all of the time.

One of the most interesting pages in the manual describes an undocumented feature of Stop Press. Apparently Stop Press can work with up to 5 pages simultaneously on a 512K machine.

Conclusion

The two packages are broadly comparable, so which should you buy? If you work with Stop Press there can be no doubt that the Tecnation product is better value for money, but it is specific to Stop Press. If you work in Newsdesk International then HD Design are the people to see. ■



GET SET TYPESET

8000 PLUS VALUE VERDICT 4/5

HD FONTS ETC.

8000 PLUS VALUE VERDICT 3/5

GET SET

Proper typesetting straight from your discs! Steve Patient investigates...

One of the areas where computers can eliminate a great deal of waste paper is in typesetting from disc. Text can be prepared and polished electronically, checked and typeset without ever being put to paper and proofread in the traditional way.

Let the piper play the tune

You're paying a professional to typeset your work. If you have a sample of work and you'd like to emulate it then take it along. If not then leave the decisions on design and layout to those who've had training and practise. You will generally get a more professional result than if you try to specify everything yourself.

Imagine that you've just finished the fourteenth draft of your definitive novel describing three generations of medieval Welsh hill farming folk and are convinced you can do no better. The next step is to print it all out yet again before rushing it off to the publishers by motorcycle courier.

On the PCW printing five hundred pages in double spaced NLQ will take you something like twenty four hours of non-stop work and a closely related number of cups of coffee. But you had to send it all printed out in double spaced NLQ – after all your publishers can't read a disc, can they?

Naturally enough within seven minutes of the post arriving at the publishers the whole building is buzzing with excitement and they decide to publish your work. It's at this point that the process becomes very simple for you but very complicated behind the scenes. There are a number of fairly technical steps between acceptance of a manuscript and publication.

One of the first steps in the conversion of your work into a book is for an editor to sit down with your manuscript and make marks all over it. Some of these will simply correct spelling mistakes or punctuation, some will correct transposed letters or words, duplicate words or delete unnecessary words. If your work has been properly proofread then there shouldn't be too many corrections; however, there may still need to be a great many instructions for the typesetter. Whether or not there are extensive alterations in your work the typesetter is the next to see it.

Set squares

Not so long ago a typesetter would have been a man who pulled metal blocks carrying embossed letters out of a rack and set them in a frame. This was, and still is, a highly skilled and labour intensive occupation and thus a prime candidate for mechanisation. In fact mechanical typesetting machines were invented soon after the typewriter and were followed by computer controlled devices just as soon as the computers could do the work.

Mechanical typesetting made a noise like a small foundry and involved a large machine with a

complex keyboard and magazines full of type which were slid into place with much rattling and banging. This worked for fairly straightforward typesetting requirements but still required a great deal of skill.

Photographic techniques replaced these allowing the letters to be held on glass plates. Though still mechanical the whole process was now faster and quieter. This process had the added advantage of allowing the letters to be varied in size optically.

Typesetting machines need a wide variety of instructions to inform them of such things as different kinds of spaces, line ends, indents and a whole host of fonts (the style of the printed letters) and point sizes along with various other effects. (The text of this article is in Helvetica font, the size is 8 point, and the leading – the space between the lines – is ten point). If the book is to be only text this isn't too involved but a complex layout, like a magazine page, with a variety of fonts and point sizes, takes a great deal more work to get right.

Early typesetting keyboards didn't use QWERTY layouts and so couldn't be operated efficiently by typists even if they had been allowed to try. Computer based versions also need to have lots of extra keys for the codes necessary to send instructions to the machine. The special needs of typesetting machines makes all those control codes you have to send to your printer look straightforward.



Take a letter,
Lavinia, any
letter

A computer's internal representation of a character or control code doesn't need to bear any relation to the character itself. In the PCW these are represented by the ASCII character set, (American Standard Code for Information Interchange - that's why the pound sign isn't there). IBM used a system called EBCDIC which wasn't taken up very widely because it can't be pronounced. Typesetting machines frequently use their own, often based on the width of the letters.

Set in their ways

Since those who design and build typesetting machines were concerned specifically with typesetting rather than general computing there existed no good reason to worry about this lack of standardisation (and anyway, computer manufacturers in general have only recently begun to worry about standards. Until they began connecting them up there wasn't any reason to).

Those early machines were hideously expensive and it was never envisaged that writers would ever have access to them, or indeed to any computing power. This was a reasonable assumption as writers are invariably poor and have to moonlight as garage attendants or famous actresses in order to pay the bills.

Because of the knowledge and skills involved typesetting machines required a great deal of training to use effectively. Once in possession of your magnum opus the typesetter would sit down with the marked up text and type it all back in again. This is still usually the case even with computer-based systems.

It is at this stage that a lot of the information which once appeared in your original text, and had been lost in the printout, has to be entered again in a form the typesetting machine can understand. You might well have included footnotes, for example, or quotes in italics, and these need to be re-entered in the form the particular computer typesetting system uses. The whole exercise is time consuming and expensive.

It's all done with mirrors

Once the work of entering your words all over again is completed all that text that you originally put into your PCW and which you had stored on disc is again on a disc. It can

now go to the next stage which is to produce either a film or a positive bromide image on photosensitive paper.

Effectively this is simply a photograph of the finished page produced by the typesetting machine according to the codes input with your text, but a photograph without an original.

This is done in one of two main ways. One method is to fire a laser at a spinning mirror which directs it to the right point on the photographic paper or film; this is called a *Raster Image Process*. If you look closely at your television screen you will see the image is composed of lines, this pattern of lines is called a *raster*.

Each one of these lines is composed of tiny dots. The image the laser generates is built up in the same way as a dot matrix printer. The image in a photocopying machine is generated in a similar manner (or a fax machine for that matter).

The other method is to generate the shape of the letter on a high resolution cathode ray tube (like a television) and use a system of lenses to get it onto the film or paper at the right place and the right size. This method produces marginally crisper print but at the expense of flexibility.

The penultimate stage is to lay the film across a lithographic plate and expose the whole shebang to ultraviolet light. This hardens the parts of the plate exposed through the film and the softer parts are then washed away. This plate can then be wrapped around a large drum and used to print the actual words on the paper.

More than my word's worth

It doesn't take a genius to appreciate that typing all that text back into the typesetting machine is the real bottleneck since all the other processes can be mechanised. With the advent of the PCW range (and those other computers we don't mention) it is becoming increasingly rare for writers to actually commit pen to paper.

The ease with which computers allow writers to work with words, making them as malleable as so much clay, has seduced all but those happy and select few who can afford to have

014 INDEX—Transactions—Stephen Marks

File name : 014 Page 1
(HGX) (LL12.6) (PS7) (LS7.3) (FT1) (IN0.7)HE
014 INDEX—Transactions—Stephen Marks

(10) Dunmore Pineapple (Scotland), visit <FT3>2<FT1>38~
Dunsoghy Castle (Ireland) <FT3>6<FT1>44~
Dutch gables (FT2) see <FT1>shaped gables~
Dyrham Park (Avon) <FT3>6<FT1>25i, 26i~
~
(FT3) East (FT1) Anglia: 16th-c terracotta <FT3>1<FT1>39-48i; medieval carpentry
<FT3>1<FT1>8-38i~
East Barsham Manor (Nfk) <FT3>1<FT1>39, 41~
Eastbourne (Sx), Compton Place <FT3>4<FT1>4~
Eastington Hall (Worce) <FT3>3<FT1>6i, 12i~
East Suffolk Building Record <FT3>7<FT1>33~
Eaton Hall (Cheshire) <FT3>6<FT1>27~
Edinburgh: visit 1976 <FT3>2<FT1>30-1, 32-4, 35-8; Easter Dalry House
<FT3>2<FT1>35; Holyrood House <FT3>2<FT1>36; New Town Conservation Committee
<FT3>2<FT1>30, 32-3, <FT1>38~
St Giles Cathedral <FT3>7<FT1>49; Stenhouse Monument <FT3>2<FT1>36; sources of lime <FT3>7<FT1>49; Stenhouse Conservation Centre <FT3>2<FT1>36-7; Tron Kirk <FT3>2<FT1>35-6~
electrolytes <FT3>8<FT1>44-5~
electronic structural monitoring <FT3>9<FT1>11-18i~
Elmstead Market (Essex) <FT3>1<FT1>12, 13, f49~

Multi-format computers like this can take the above text from a 3" disc and prepare it for the typesetting machine



Resolving to do better

The big difference between what the typesetting machine is doing and other ways of generating text on paper is in the precision and flexibility of the machines. Most work to a resolution of at least 2400 dots to the inch and in a variety of fonts. This compares to about 75 dpi (dots per inch) for the PCW screen and about 120 dpi for the printer. Even laser printers only usually work to 300 dpi.

This very high resolution is one of the reasons that typeset text is so easy to read. Text as small as six point can be used in 8000 Plus magazine which would be unintelligible if produced on the PCW printer. (Who said all 8000 Plus text is unintelligible?)

014 INDEX—Transactions—Stephen Marks

Dunmore Pineapple (Scotland), visit 2 38
Dunsoghy Castle (Ireland) 6 44
Dutch gables see shaped gables
Dyrham Park (Avon) 6 25i, 26i~
East Anglia: 16th-c terracotta 1 39-48i; medieval carpentry 1 8-38i~
East Barsham Manor (Nfk) 1 39, 41~
Eastbourne (Sx), Compton Place 4 4~
Eastington Hall (Worce) 3 6i, 12i~
East Suffolk Building Record 7 33~
Eaton Hall (Cheshire) 6 27~
Edinburgh: visit 1976 2 30-1, 32-4, 35-8; Easter Dalry House 2 36; New Town Conservation Committee 2 30, 32-3, 8 32; St Giles Cathedral 7 49; Scott Monument 2 36; sources of lime 7 49; Stenhouse Conservation Centre 2 36-7; Tron Kirk 2 35-6~
electrolytes 8 44-5~
electronic structural monitoring 9 11-18i~
Elmstead Market (Essex) 1 12, 13, f49~
Elterwater Quarry 7 52, 54~
Ely (Cambs), Cathedral 5 29~
glass museum 7 67~
endoscope, fibre-optic 7 67~
English Tourist Board 9 6, 7~
epoxy resin repairs to timber 2 22-3, 8 40-1i~
Ernest Ireland Construction Co 10 15~
Erwarton Hall (Sfk) 8 6i, 7~
Essex County Council, photographic archive 7 33~
Exeter (Devon), Cathedral 5 50, 7 8~
Excaline 5 47~
Exterior treatments to imitate stone 4 3-6~
façades: replica 2 45-6; retention of 2 46~
Faculty Jurisdiction Commission 7 33~
Fanzalo (Italy) 4 27~
Fen Drayton (Cambs) 8 35~
fibreglass, use of 8 35~

TYPESETTING

Double take

ASCII	EBCDIC
a	97
b	98
c	99
d	100
e	101
f	102
g	103
h	104
i	105
j	106
k	107
l	108
m	109
n	110
o	111
p	112
q	113
r	114
s	115
t	116
u	117
v	118
w	119
x	120
y	121
z	122

someone else type in their heavily corrected, nearly unreadable and thoroughly annotated text. With so many words already on disc there began to grow up a mighty clamour, 'Let machine speak unto machine.'

This laudable desire sounds as if it ought to be easy enough to implement. After all, a disc is a disc is a disc, isn't it? Unfortunately, like so many things to do with computers, it seems harder to achieve in practice than in theory.

There are a number of problems: the discs themselves are often different sizes – only the Amstrad machines use three inch discs for example. The format of the discs is

different, the way in which the information is kept in the disc files varies from one word processor to another and finally, the way typesetting machines code characters and control codes internally is usually specific to each manufacturer.

The quick fix

Colin Massey of Transprint Communications in Bath, a young company who have invested heavily in up to the minute information technology, explained how to cut through this jungle. Taking pride of place among the various other computers in his office is a beast glorying in

Case books

Anne Tauté and Bart Ullstein run separate small publishing companies from the same offices in Kennington, just down the road from the Oval cricket ground. Anne produces recipe books and the tongue-in-cheek 'Bluffer's Guides' series (some of the authors will be familiar to 8000 Plus readers); Bart works on various projects for clients such as the World Wildlife Fund. Both use PCWs in their work and have been giving typesetting from disc an extensive trial in the last few months, but are cautious about recommending it to others.

'You have to know what you're doing,' explained Bart. 'It's not for dabblers. You can end up spending more time and money than if you'd done things in the traditional way'. The main asset, Anne said, was time. 'If an author supplies their work on disc and we typeset directly from that, it can mean a proof comes out in days rather than weeks. But it may end up being just as expensive.'

Right off format

The first problem is that authors use a variety of different machines and disc formats – most use PCs, and only one of their writers supplies PCW discs! These have to be converted to three-inch format so that they can do editing on screen on their PCWs, and that isn't cheap. Including costs like transport by courier, each disc costs around £50 to convert professionally. 'You can get charged £8 for having data changed from ASCII to LocoScript format,' said Bart, 'which you can do yourself by the 'insert text' command, of course!'

But the problems aren't over. Conversion to ASCII knocks out any exotic characters – accents, foreign letters, super and subscripts etc. – which are lost or translated into gobbleygook in the LocoScript file. They can be replaced in LocoScript 2, which can handle any combination of any accent and any letter, but they would get lost in going across to the typesetting machine, so have to be substituted by combinations such as {tilde} for ñ.

For Bart, who produces books and brochures in several European languages, this can be a real headache. He usually ends up going through the text as a LocoScript document using [FIND] and [EXCH] liberally which can be very time-consuming – and an editor's

keyboard time is expensive. 'The problem is that you're only shifting work onto yourself. This is stuff that the typesetters would normally do themselves.' Unlike Anne, he finds that the time taken is about the same, but there are cost savings which just about make typesetting from disc worthwhile.

There are other problems too. Anne, who trained as a secretary, has had to unlearn a lot of 'correct' typing conventions such as putting two spaces after a full stop – something all her authors tend to do! Typesetting protocol demands a single space, and while of course you can use [EXCH] to change them all, when you have to do it for thirty 25k chapters... This is just one of the many small things which would be put right at the keying in stage of the normal process, but which ends up getting done by the editors, whose time is precious.

Coming to a head

Despite the problems, though, Anne is happy to continue typesetting directly. 'Publishing is getting more and more technology-based', she said, 'and you have to keep up. It's like getting a PCW – it was a real trial at first, but I made myself work through the manual, and now I couldn't do without it. I wouldn't use it to run the office accounts or anything like that, but for editing it's invaluable. I think it's bit like the head of the Gorgon – you can't think too much about the technology directly, you have to look at its reflection in the work you do.'

Bart thinks that all this typesetting from disc stuff may be a red herring. 'The publisher of the future will have an optical reader which can scan an author's typescript and turn it automatically into a disc file', he says. Meanwhile, despite the hassles, they're continuing the experiment – but remain wary.



Editor Anne Tauté is in favour of typesetting from disc – but is cautious



Future publishing

The very latest thing in typesetting from disc is the Page Description Language. A PDL allows you to specify every aspect of a page on a computer screen including some of the pictures.

8000 Plus magazine is prepared this way. The articles are composed on a PCW and then transferred to an Apple Macintosh computer to be pageset. The Macintosh generates PostScript code which is sent directly to a Linotronic 300 which then produces a finished bromide for the printers.

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Better Spelling	School Software	16.95 14.83
Biology (12-16)	School Software	22.95 20.08
Chemistry (12-16)	School Software	22.95 20.08
Giant Killer	Topologika	14.95 13.08
Magic Maths (4-8)	School Software	16.95 14.83
Maths Mania (8-12)	School Software	16.95 14.83
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AMX Stopress Software only	A.M.X	49.99 44.99
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Joystick Interface (RAM)	Ram Electronics	19.95 17.96
Kempston Mouse + Control Software	Kempston	69.95 62.96
Kempston Mouse + Jeeves	Kempston	79.95 71.96
Kempston Mouse + Write Hand Man	Kempston	89.95 80.96
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Light Pen + Newsdesk International	Electric Studio	69.95 62.96
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PCW UTILITIES

Details of Goods	Software House	R.R.P	Our Price
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DBase II	Aston Tate	99.95	87.46
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Discmate	Siren Software	24.99	21.87
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Counting the cost

Transprint charge about sixty pounds per translation table, depending on the complexity, which is a flat charge. Thereafter they charge 25p per thousand characters up to 500k and 20p between 500k and 1000k. After that they will negotiate a price. This gets your text into a form suitable for the typesetting machine of your choice. They also offer a service translating from one disc

format to another or to another word processor format.

They will take your text through to bromide stage and final printing but you'll have to get a quote. In general, the theory goes, typesetting from disc this way is likely to cost about one third the price of having the work typed in at the keyboard.



Writing translation tables is a job for specialist programmers

Locomotive runs over text

There is always one fly in the most carefully packaged ointment; in this case the fly is called LocoScript. No one would argue with the fact that the PCW and LocoScript have had an extraordinary effect on the way in which writers perceive word processors, mainly because LocoScript is an extremely user friendly program and they can actually afford the whole system. Unfortunately LocoScript produces very complex data files.

LocoScript does its clever tricks with words by building text file structures which include format information that the program will need to produce the final desired appearance on printout. So complex are these that up to half a LocoScript file can be control characters. LocoScript files proved to be one

of the most difficult to translate, but Colin Massey could do it.

Then came LocoScript 2, with a brand new file structure only loosely related to the LocoScript 1 structures – LocoScript 2 has to translate LocoScript 1 files to work with them. Intermedia do not yet have a protocol for LocoScript 2 files and don't expect to have one written before Christmas. However they assure us it will be available in the early part of next year.

Having said that Colin says he can do LocoScript 2 as well, but keep things as simple as possible. The main thing to avoid is changing templates as it can get expensive. He has to build a complete translation table for each template you use.

Fonts

There is some confusion concerning exactly what a font is. This has been brought about by the desire of various entrepreneurs to offer less for more. A font is a particular style of lettering – for example Times Roman – in a complete range of point sizes. The same style of lettering in a different weight eg **bold**, would constitute a different font. It can also be spelt as *fount*.

the name of the MMC 4000, made by a company called Intermedia.

Based on a Zenith AT it has five external disc drives and can read from 3", 3 1/2", the two different 5 1/4" standards and 8" discs. Via extra add-ons it can also read magnetic tape (the sort of thing mainframe computers use). According to Intermedia the MMC 4000 can read about two thousand different disc formats altogether and write and format about half that number. Even more impressive was a demonstration of the machine working out the format of an unknown disc for itself. However, if your address isn't written on the outside it still won't know where the disc came from!

But getting the text off the donor disc is only solving half the problem. In its present form it still won't mean anything to most other machines or to the typesetting machine at which we're aiming. (In the case of Transprint this is a Compugraphic machine).

The next step is for specially written software on the MCC 4000 to translate the file into something readable by the desired target machine. This is a two part process accomplished by means of what Intermedia call *protocols*.

Cave canem

Some typesetting companies will only check the first few pages of a text file in constructing translation tables. Since these are very literal in their action any departure from the initial document layout will cause problems. For instance, if you're in the habit of beginning a paragraph with two spaces then changing to three will have unforeseen effects.

Runs of spaces will generally be knocked out so don't use them to construct tabular work, use tabs. Similarly, changing templates part way through a file will necessitate a new translation table, so resist the urge. If you have instructions to the typesetter, (who should still check the final altered file) put them in like this <indent all text from here> and <stop indenting text>.

```

/_i currentflat def
/i {dup 0 eq {pop _i} if setflat} bdef
/j /setlinejoin ldef
/J /setlinecap ldef
/M /setmiterlimit ldef
/w /setlinewidth ldef
% path construction operators
/_R {.25 sub round .25 add} bdef
/_r {transform _R exch _R exch itransform} bdef
/c {_r curveto} bdef
/C /c ldef
/v {currentpoint 6 2 roll _r curveto} bdef
/V /v ldef
/y {_r 2 copy curveto} bdef
/Y /y ldef
/l {_r lineto} bdef
/L /l ldef
/m {_r moveto} bdef

```

You're talking my language! This is Postscript, a typesetting programming language

These take the original file and turn it into a standard format known as IMIC2.

IMIC2 is an internal proprietary format invented by Intermedia which preserves the original text as well as the page layout information, printer style (bold, italic etc), headers and footers, indented text, justification and just about everything else that can be specified by a word processor.

If the protocol can't quite complete the translation process to IMIC2, something that can happen since production of protocols inevitably lags behind the word processor upgrades, then a translation table can be built or modified to effect the final touches. You can watch this being done and it is a fairly straightforward procedure – as long as you are thoroughly familiar with hex codes, file formats, a variety of internal computer codes and typesetting practice.

It may seem contrary to invent yet another format when there are already so many in existence. But in practice it is easier to work from a standard baseline specifically designed to handle the precise information you are concerned with.

Once it has the text in IMIC2 format the Intermedia machine can quickly build a file suitable for feeding into any of a wide range of typesetting machines; so much so that Transprint have found themselves becoming involved in bureau work for other printing houses. In fact the Intermedia machine is so flexible that Transprint now offer a straight translation service as well from, for example, IBM Displaywrite (a mainframe word processor), to MS-DOS Wordperfect, (almost an industry standard). ■

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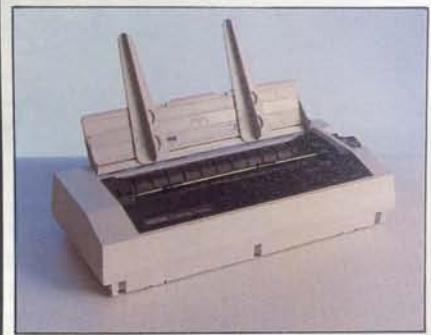
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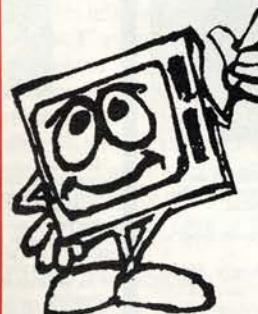
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GAME PARK

Giant of the PCW games world Tony Flanagan looks at Level 9's new gnome adventure...

INGRID'S BACK

£19.95 • Level 9 (0344 487597) • All PCWs

As someone who has never come face to face with a real Yuppie (presuming Yuppies are real, that is), I feel inadequate to comment on their alleged deficiencies. Besides, I am not the kind of person to mock the seriously afflicted. This is better left to the kind of comic adventure produced, in this case, by Level 9.

Ingrid's Back is the sequel to Gnome Ranger which was released last year. This game starred Ingrid Bottomlow, the world's ugliest gnome. If you want to know how ugly that is let me tell you that Ingrid's teeth are green and furry, which means, I suppose that she finds combing them more efficacious than using a toothbrush.

Having previously been ostracised from her home town of Little Moaning, Ingrid has now decided to return. No wonder. Despite its name, Little Moaning is an unspoilt haven of idyllic Gnomedom. In Little Moaning, life is largely spent in fishing and when you're not fishing you're eating fish pies and drinking 'gnome-brew'. What more could one ask for?

But such a tranquil lifestyle, it seems, is under threat from an unscrupulous property developer by the name of Jasper Quickbuck. Jasper is the present 'Lord' of Ridley's Manor (no relation to the Nicholas Ridley, of course!) whose intention it is to flatten the gnome-belt village and build a Yuppie estate in its place. Not that (to my mind) there's anything wrong with that. The poor little darlings have got to live somewhere so why not in somebody else's village?

The game comes in three parts which follow on chronologically but which can be played separately. In the first, Little Moaning, Ingrid's task is to gather names for a petition against Jasper's planned eviction of all the villagers. On the face of it, such a task seems doomed to failure. It's doubtful for example that gnomes such as Jumbo Butterpat or Seamus Sosmall could write their names even if they wanted to. The former appears to spend most of his time in the Green Gnome, the local pub, where one pint of the local ale packs as much punch as a gallon of Theakston's Old Peculier. However, to help her in such a hopeless quest is Flospy, Ingrid's faithful dog.

Jasper's shameless plan is put into operation in Steamroller at Dawn, the second part of the adventure. Here, almost singlehandedly, Ingrid must defend Gettlefield Farm and the other dwellings from being steamrollered. Initially, she has trouble getting out of her bedroom, the exit from which seems to be barricaded by a tumult of turnips. But not only must she stop the steam roller but worse endure the sexist comments of the troll workers who pass such mellifluous gems as 'Cor! Lookit that luvly bit o' crumpit'.

Bogey woman

In the final part, Ridley's End, Ingrid takes on the role of private investigator by posing as a new maid at the reputedly haunted Ridley Manor. Here she is abetted but not aided very much by her cousin Daisy, who is even uglier than

Ingrid but has the rather endearing habit of 'picking her nose thoughtfully' (a habit which statistics have proved is the favourite pastime of ninety-nine per cent of British drivers.)

Once inside the Manor it is Ingrid's task to gather a wide range of incriminating evidence which will put a stop to Jasper Quickbook once and for all. What, for example, is in his 'Faxofile'. What and who do his photographs reveal? Perhaps Rulf (a very strange Aussie who paints pictures and sings about his didgeridoo!) might be of some help?

The game contains the same powerful commands that were used in its forerunner such as FIND, GO TO, RUN and FOLLOW, with an indispensable UNDO for those costly mistakes. The game also permits RAM SAVE AND RAM RESTORE which means that you can save a game position into memory, leaving a permanent SAVE until the very end of a session. This prevents the needless changing of discs every time you make a terminal mistake.

Like its predecessor, the game is quite humorous though you won't need a surgeon to stitch you up by any means. Personally, I'm still not happy about the punning on gnome (a picture called the Gnomalisa, for example) which gets a little tedious. After all, it's a bit like egg and Edwina Curry jokes... too many, too often and you break out into something which makes salmonella seem positively desirable. Overall, this is a good comic adventure but maybe it's time Ingrid hung up her Dr Martens. ■



Ingrid's Back is colourfully packaged, with a well-written manual which should be of use to novice and veteran alike. Half of the manual is given over to Ingrid herself with the second instalment of her Gettlefield Journal.



The pictures (of which there are twenty-eight in all) are clear and detailed rather than outstanding, but they do add atmosphere, perhaps making up for the lack of detailed textual description that Level 9 appears to prefer. This is not to say that the text is badly-written, just that it is more functional than literary.

INGRID'S BACK

PLUSES

- ▲ Good text and graphics
- ▲ Powerful commands
- ▲ Nicely satirical

MINUSES

- ▼ Humour can get monotonous

ATMOSPHERE CHALLENGE

4/5
5/5

INTERACTION VALUE VERDICT

4/5
4/5

...and Roger Batty, Chess champion of All Doncaster, evaluates Clock Chess '89 while Rob Ainsley tests World of Soccer



CLOCK CHESS '89

£19.95 • CP (0993 823463) • All PCWs

Last year saw Clock Chess '88, billed modestly by its designer as "probably the world's strongest 8-bit chess program", an ambitious claim which a number of tests against competitors such as Colossus and Cyrus II seemed to bear out.

In Chess terms the new version is much the same as its predecessor with strong openings and good attacking lines. It shows a strong sense of position, and plays some excellent combinations. It is slightly weak when faced with very closed positions (ie when the player does not attack, but makes a compact and very solid defence). Often it is then tempted into making somewhat rash attacks, because the machine is "attack orientated" in its thinking.

In programming terms, some features are slightly redundant. The Kriegspiel options a bit useless: playing blind, when you have absolutely no idea where the pieces are, is far too difficult an exercise for most people. Limited intelligence in this scenario is far too limited!

CLOCK CHESS '89

PLUSES

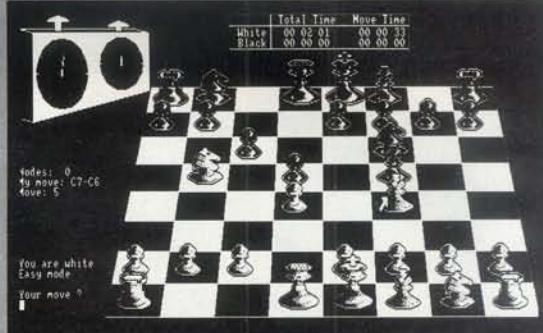
- ▲ Even stronger attacking play
- ▲ Comprehensive, expandable opening book
- ▲ Bags of features

MINUSES

- ▼ Minor niggles in endgame
- ▼ Clock still biased towards PCW!

RANGE OF FEATURES 5/5
GRAPHICS 4/5

STRENGTH OF PLAY 5/5
VALUE VERDICT 5/5



The clock appears more fluid for the PCW than for the player, though the '89 version is better than the old one. Sometimes five seconds is more like eight, depending on the thinking of the machine. Also, annoyingly, all opening moves played by the machine are counted as taking 0 seconds. In extreme cases of well known or standard openings this can lead to the position where you have taken over a minute after 12 moves, even though playing as fast as possible, whereas the machine has taken zero seconds for the same number!

Mating and draw detection still have a few flaws. Version '89 is better than the first model, because it spots pawns heading for the 8th rank quicker. But it's still quite slow, and sometimes oblivious of critical pawns on rank 6. When only two kings are left, it waits for the 50 move rule before announcing a draw, which of course is tiresome. With other impossible positions, it can't detect complicated cyclical positions, eg. (ABCDABCDABCD etc.) only simple (ABABAB etc.) types. This is important when you're actively seeking a draw, but the machine won't accept the scenario as drawn...

Despite the niggles Clock Chess '89 is still an excellent program. The attacking nature of the machine makes it a hostile opponent which can be devastatingly good against the unwary. The subtleties of the game (sacrifices, closed up play, letting the enemy wipe itself out, tempting its pieces into traps and bad positions etc.) elude it, but then they usually elude all chess programs, even the very best. It's probably as good as its slogan, in computer terms, because it's very good. ■

WORLD OF SOCCER

£15.95 • Coda (01 789 9551) • All PCWs

Football is a philosophical game. A Watford striker once summed it up: 'Football's football', he posited. 'If it wasn't, it wouldn't be the game that it is'.

The PCW being a machine for savants, luminaries and thinking persons generally, the release of this game will be welcomed by a lot of Amstrad owning soccer fans. No fancy graphics: this is a soccer management simulation. You select squads of players for your international team – any you like from England to Eire, Iceland to Israel – and guide them through the European and World Cups.

Balancing a team is tricky – you have to take into consideration each player's good side, aerial and ground skills, ball winning and goal scoring abilities and so on. And of course luck plays a part. The game is dead easy to play and very addictive. You can save the current state of the campaign to disc and take up where you left off later on.

There are a few niggles though. The scoring can get silly (England 5, Rumania 6 was a bit unconvincing) and you often find your requests to make a tactical



WORLD OF SOCCER

PLUSES

- ▲ Nicely authentic for its simplicity
- ▲ Teams contain real players with their actual strengths and weaknesses
- ▲ Surprisingly addictive!

MINUSES

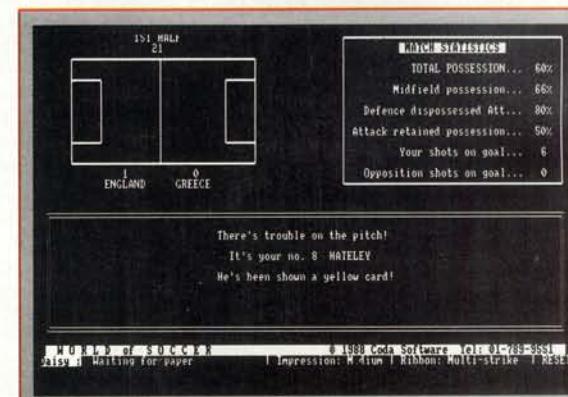
- ▼ Scoring can get a bit silly
- ▼ Waiting for other scores to come up is tedious

ATMOSPHERE
CHALLENGE

4/5
4/5

INTERACTION
VALUE VERDICT

3/5
4/5



Your matches are 'played' out schematically on screen and you have to make tactical decisions meantime – when you go one down, should you move Barnes back, or bring the midfield forward? Who should you bring into your squad for the next game to replace the injured Beardsley? All this time other results come up and the tables for each group take shape. Statistics for each match are always on display – percentage possession, percentage attacks dispossessed and so on.

move or a substitution during a game are simply ignored. It's also rather tedious having to wait so long for results of every other match to come up.

But these aside it's fun, and for anyone who thinks they can do Bobby Robson's job better, it will give a lot of pleasure – and authentic frustration! The manual gives a good insight into the strategical thinking needed and includes some lovely examples of hyperbole, how about 'Muhren... has one of the most cultured left feet in the game'? No doubt it speaks five languages, reads Thomas Mann and plays Ravel's Piano Concerto. And can give philosophical discourses on why football's football. ■

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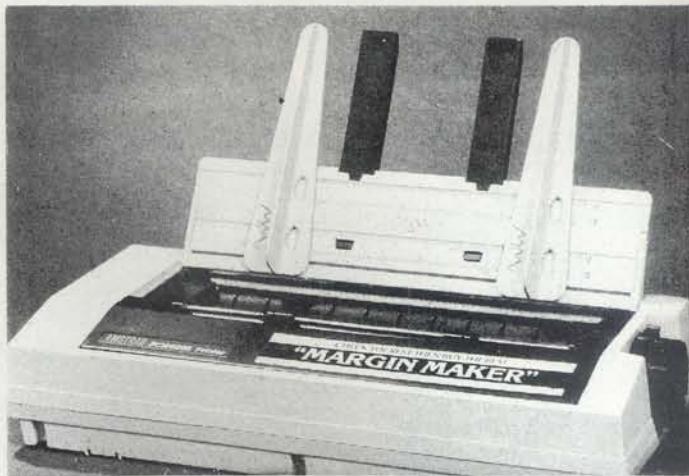
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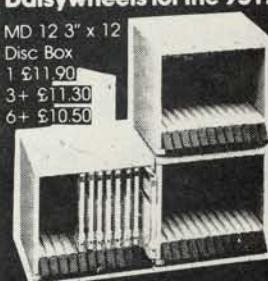
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Could Corwen's Pools Predictor win you a fortune? Rob Ainsley investigates

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Ever wondered what you'd do if you won the pools? The biggest single pools payout in Britain was by Littlewoods to Jimmy Anderson in July 1987 who won £1,339,358 for a 40p 8 from 10 perm. Experience shows that the most successful method of pools betting is to be part of a syndicate which selects the same numbers every week and goes for highly expensive, and comprehensive 'plans' which ensure that all score draws covered in your selections count towards winning lines.

Whether part of a syndicate or an individual gambler (sorry, *investor*) there are three ways of selecting the numbers to cross on a pools coupon: selection at random (eg. with a pin) selection according to a system (lucky numbers, family birthdays and so on) and selection according to form (the method used by pools pundits in the dailies).

Pools Predictor takes the last approach, basing its recommendations on the recent form of each team. This means you have to key in the results every week to keep the form register up to date. Each Thursday before you send off your coupon you run the program and ask for its predictions (home, away, or draw) for the coming weekend's fixtures. It's easy to do, but a bit tedious; keying in all the results from one Saturday can take a good twenty minutes and if you miss out results the form gets out of date. Also of course you have to key in all the fixtures for next Saturday one by one to get the results.

The program keeps a list of all league clubs in memory and you only have to key in a couple of letters from a name – the full name will be searched out for you. Typing **Liv** will bring up 'Liverpool' for example. It works on a simple string search, so typing **Li** brings up Carlisle United!

Quick on the draw

An alternative to the form prediction is sequence prediction – simply going by numbers on the coupon which have provided draws in the past and suggesting the most likely numbers for you – these appear almost instantaneously.

The drawing of the screen borders is irritatingly slow but the rest of the program works fast enough. It's a very easy package to use; the only problem is how keen you are to type in all the results every Saturday.

Will it make you money? It's best approached as a bit of fun rather than a serious investment tool; for keen pools punters with Amstrads, though, it might well be a pleasant way to work their hobby onto their PCW. The only problem will be when Pools Predictor's numbers come up one Saturday, and Littlewoods and Vernons receive telegram claims from everyone in the world who has the program... ■

What would you do if you won the pools? Spend, spend, spend? For many winning has caused nothing but problems – the first problem being how on earth to cash a cheque that is nine feet wide.

But having a million pounds is a problem quite a few of us wouldn't mind, judging by the number of people who do them – around fifteen million filling in ten million coupons every week. Now you can enlist the help of your PCW to fill in your coupon...



How much more accurate are the predictions of the program than random or system selections? Well, the only way to judge would be over a long term, over a whole season maybe, which is not much use right now. So, for what it's worth, we tested the predictions of an up-to-date version of Pools Winner for the coupon of 17th December 1988 on form and on sequence against a selection based on random numbers, and the forecasts of the pools tipster in the Observer.

What they all predicted is above – no jackpots, unfortunately! Column A is Pools Predictor's suggested draws based on form, column B the draws based on sequence, Column C is the Observer's forecasts and column D a random selection of Xs. The actual draws are in red in the leftmost column. Pools Predictor scored a reasonably impressive 5 draws out of 15 selections based on form and 3 out of 20 based on sequence. The Observer's pundit forecast correctly just 2 draws out of 13 selections, while 8000 Plus's pin landed on 4 out of 16. Make of that what you will!

** MAKE PREDICTIONS **				
Home Team	Away Team	Draw	Home	Away
Arsenal	Manchester Utd			
Coventry City	Derby County			
Liverpool	Norwich City	XXXX		
Luton Town	Aston Villa	XXXX		
Middlesbrough	Charlton Athletic			
Millwall	Sheffield Wed			
Newcastle Utd	Southampton			
O.P.R.	Everton			
West Ham Utd	Tottenham			
Barnsley	Leicester City			
Blackburn Rovers	Nottingham Forest			
Bournemouth	Walsall			
Bradford City	Swindon Town	XXXX		
Crystal Palace	Leeds Utd			
Manchester City	Shrewsbury Town			
Portsmouth	Brighton			
Blackpool	Bristol F.C.			

POOLS PREDICTOR

PLUSES

- ▲ Easy to use
- ▲ Seems more accurate than newspaper pundits

MINUSES

- ▼ Entering results can be time consuming

RANGE OF FEATURES

2/5

DOCUMENTATION

3/5

EASE OF USE

5/5

PERFORMANCE

4/5

8000 PLUS VALUE VERDICT 3/5

MINI OFFICE WALLCHART

1 Spreadsheet Main Menu

Type SHEET at the CP/M A> prompt or select Spreadsheet from the Mini Office Main Menu to get the Spreadsheet Main Menu.

1.1 Mini Office PCW Spreadsheet



This second Mini Office wallchart shows the main menus of the Spreadsheet and Graphics modules and how to create files in the spreadsheet and translate those with the GRA suffix into illustrative material in the graphics module. No data transference is possible between last month's and this month's two groups.

Key presses to know about

[f1] will allow you to delete a cell's contents. Put the cursor on the cell and press [Y] at the 'Are you sure?' prompt. [f7] helps you edit a cell's contents in the status area with the usual edit keys.

Messages too long to fit into a single cell are 'text strings'. Press [ALT] and [S] and the text you type will overflow into as many cells as required. With [f5], you can type a formula (mathematical) into a cell. When you press [RETURN], the computer will carry out the necessary calculation and the answer will appear in the cell. (In this example, formula D3-B4+C4 in cell D4: Previous balance - Withdrawal + Deposit).

This operation needs repeating all the way down Column D. To replicate D4, place the cursor in it and press [COPY]. Select [S] for a single cell copy and then [R] for a relative, as opposed to an absolute, copy. The latter puts an identical copy of the formula in the cell, while the former keeps the 'shape' of the formula and adapts it to the new cells.

To change the default number of decimal places shown (two), place the cursor in the appropriate column and press [ALT] and [D]. Pressing the right or left arrow key will increase or decrease the number of decimal places. Press [RETURN], [ALT] and [W] together, followed by the right and left arrow keys will widen or narrow a column to suit.

2 Edit Screen

3 Effects of a replicated formula and formulae calculated

4 formulae calculated

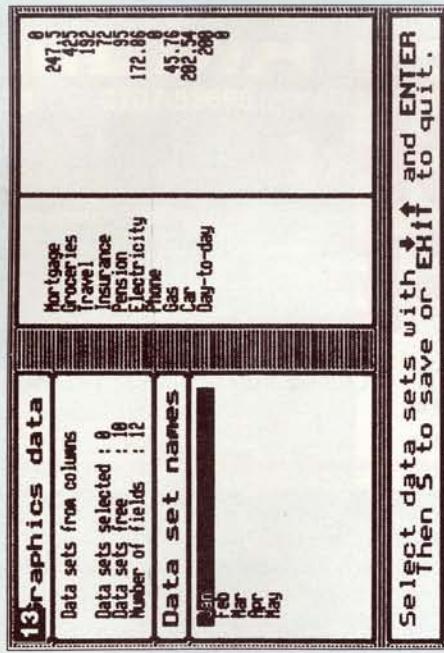
Make the actual calculation of the repeated formula appear in the cells by pressing [F3]. Do the same with the cheque numbers in the first column.

5 Editing file: A:SPREADSHEET.SPR



13 The Graphics Data Screen

The data set names are the names of the columns. On the right hand side are all the particulars pertaining to the month that is highlighted with the bar. Work your way down each data set (Jan, Feb, Mar, etc) with the arrow key and pressing [RETURN] until each one has an S beside it. Press [S] to save them to disc.



Select data sets with **↑** and **↓** then **S** to save or **ESC** to quit.

Load this by either typing in GRAPH at the CP/M A> prompt or selecting Graphics at the Mini Office Main Menu. Load the graphics file (GRAPH.GRA - the file you've just saved) at the Load/Save menu and press [EXIT] to go back to the Graphics menu.

14 The Graphics Main Menu

Bar chart
Line chart
Pie chart
Edit screen
Load/Save
Disc Utilities
Mini Office main menu



15 The Pie Chart Menu

This is the screen that first appears on selecting the pie chart option. To see January's expenditures in this form, press [RETURN].

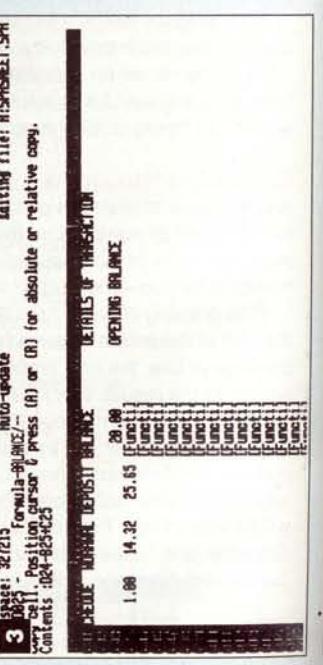
[EXTRA] with an arrow key moves the cursor to the next cell. [SHIFT] with an arrow key scrolls the screen; the cursor stays on the same cell.

[GRID] moves the cursor to Cell A1. [ALT]/[GRID] moves to the bottom of the current column.

[PARA] moves to the right of the current column.

Shortcut Cursor

[ALT]/[SHIFT] plus an arrow key makes the cursor jump ten cells.



Mini Office PCW			DETAILS OF TRANSACTION	
DEBTS	DEPOSITS	BALANCE	OPENING BALANCE	CLOSING BALANCE
14.32	25.65	39.97	39.97	39.97

5 Load/Save Menu

Access the Load/Save menu by pressing [EXIT].

There's also a useful Immediate Save option when editing a sheet. Press [RETURN] [ALT] and [I] to take you straight to the directory columns. Press [RETURN] to save the sheet and then you will be taken back to the edit screen.

6 Print Spreadsheet Menu

This is accessed through the Spreadsheet Main Menu.

7 Alter Spreadsheet Menu

This is used for making global changes to a sheet. You can, for example, limit the number of rows and columns you want displayed.

Number of columns [5-20]	100
Number of rows [2-121]	100
Cell display	On
Windows	Zero
Auto update	Off
Negative values	Off
Read null cells as	Off
Wipe spreadsheet	Off

8 The Cell Display Menu

This one's accessed through the Alter Spreadsheet menu and holds all the default values for all the cells in the sheet. It's fairly self-explanatory. If you don't choose the Set all cells as above option, the values you set will only apply to 'new' columns.

9 The Windows Menu

The fourth option on the Alter Spreadsheet menu. The first option lets you 'lock' the first row and column of the sheet you're working on so that regardless of where you go they will always be visible to you. The second option comes into play if you've divided your sheets into windows. If you only want to print one of them out, you enter its number and move onto the Print Spreadsheet menu.

Windows	No. of
Fixed fields	Off

6 Print Spreadsheet Menu

This is accessed through the Spreadsheet Main Menu.

7 Alter Spreadsheet Menu

Both	Both
PCW	PCW
Continuous	Continuous
80	80
Draft	Draft
Off	Off
Print whole sheet	Print whole sheet
Print window	Print window
Print window	Print window
Print	Print
Exit	Exit

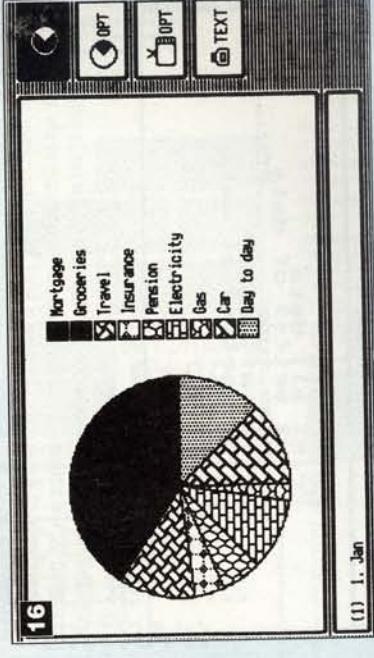
7 Alter Spreadsheet Menu

This is used for making global changes to a sheet. You can, for example, limit the number of rows and columns you want displayed.

Number of columns [2-121]	100
Number of rows [2-121]	100
Cell display	On
Windows	Zero
Auto update	Off
Negative values	Off
Read null cells as	Off
Wipe spreadsheet	Off

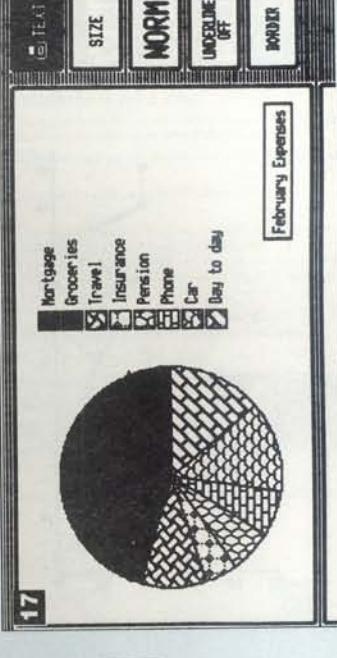
16 January's Expenses in Pie Form

To move onto February's expenses, highlight the second icon to the right of the screen and press [RETURN]. New icons appear: highlight the first one (DATA SET) and you will be prompted to type in the name of the second data set or column (which is, of course, Feb). Press [RETURN], [EXIT] and [RETURN] again to draw the chart.



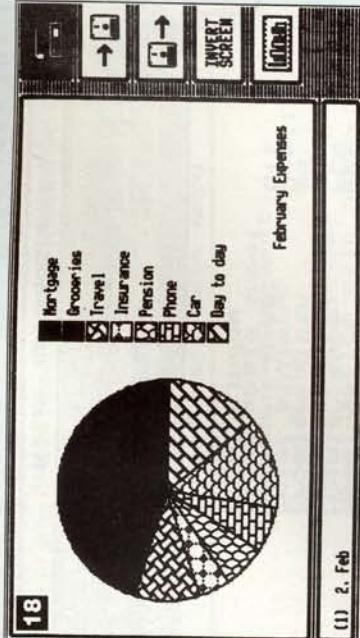
17 February's Expenses with Text

If you select the last icon on the right hand side of the screen (ie, the inkpot), then you have all sorts of text enhancement facilities at your disposal. You can alter the size of the characters, their intensity, whether you want them underlined or not or whether or not you would like a border. When you've set all the enhancements you need, press [RETURN], enter the text you want to include and an appropriately-sized box will appear on the screen which you can move around and ultimately 'lock' into position. To return to the main Graph screen, press [EXIT].



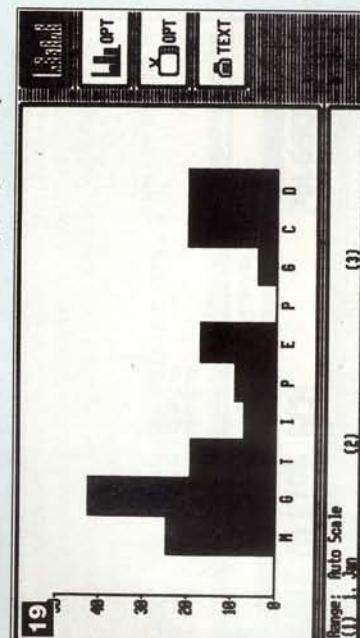
18 Display Options

When you choose the third icon on the Graph screen (ie, the television set), a number of display options are available to you. If you select the first option, the graph that is currently displayed on the screen will be printed out. (The defaults are sideways printing on continuous stationery). It takes a while but it looks good. The second and third options, featuring floppy discs and arrows, enable you to save a graph to disc and load it again.



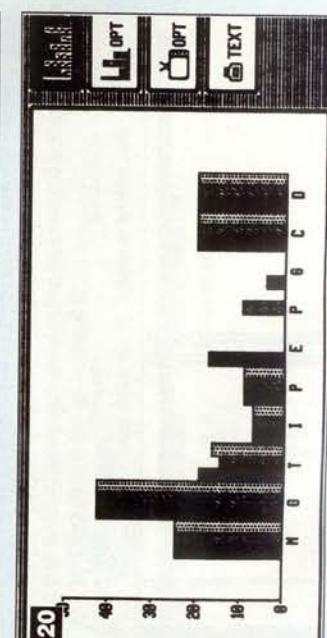
18 Bar Chart of January's Expenses

The bar chart option works in much the same way as the pie chart. To display a bar chart using the data that we've been using simple choose the bar chart option at the Graphics main menu and press [RETURN].



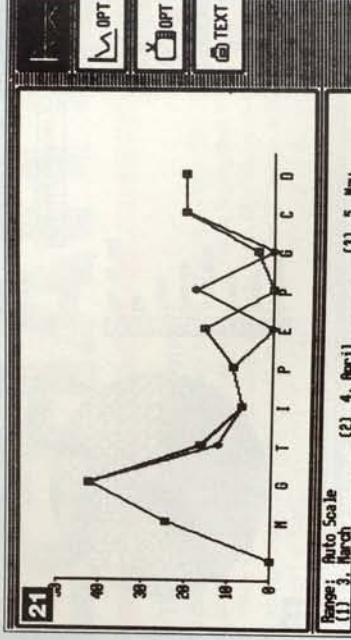
19 The Three Set Bar Chart

Unlike pie charts, bar and line graphs allow you to select up to three data sets for plotting at the same time. When you select the first option on the right hand side of the screen, you will be asked how many data sets you wish to use. With the bar chart facility, you can choose whether you want your three-way presentation of data to be in a stacked form or side-by-side.

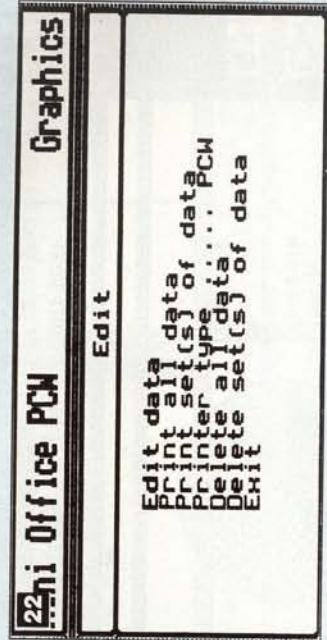


20 The Three Set Bar Chart

21 The Three Set Line Graph

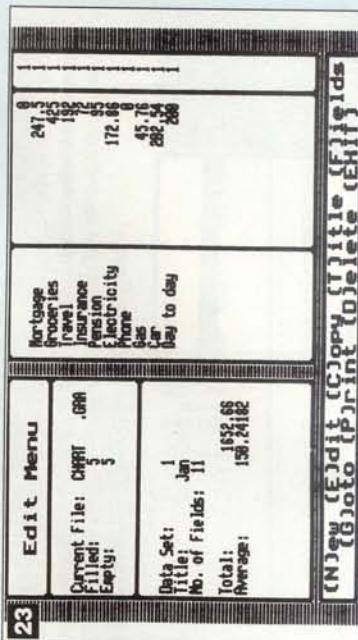


It's possible to edit data from the graphics module without having to go back into the spreadsheet module. This is done with the data editor, accessed through this menu at the main Graphics menu.

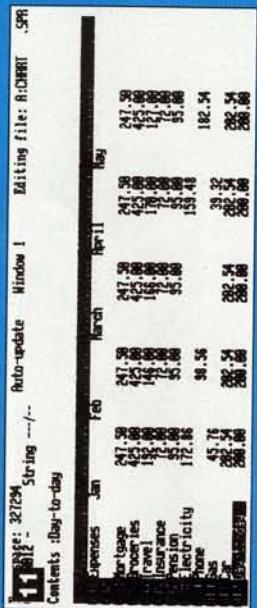


22 The Edit Menu

Accessed through Edit Data in the Edit Menu. If you want to edit the data displayed on the screen, press [E] and a cursor appears in the box on the right hand side of the screen. To clear a field, place the cursor on it and press [CUT].

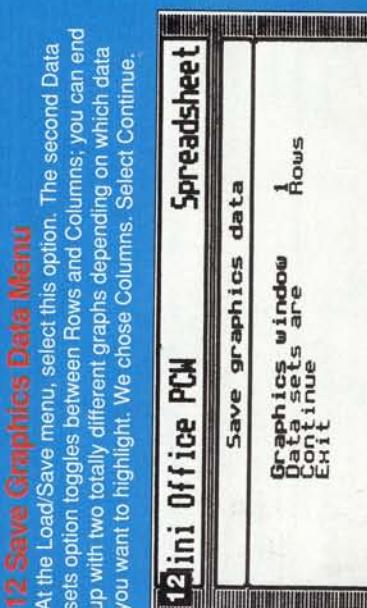


23 The Editing Screen



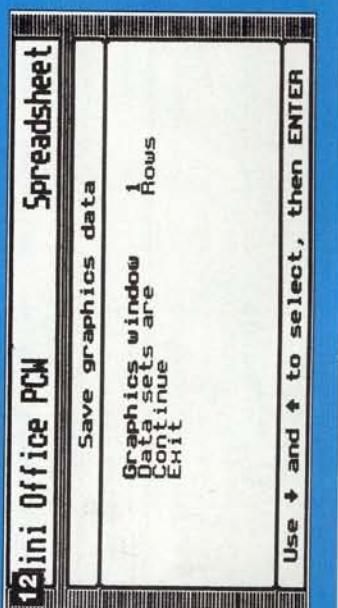
11 A graphics window on a spreadsheet detailing monthly expenditures.

Once the window's been drawn, press [EXIT] to go to the Spreadsheet main menu.



12 Save Graphics Data Menu

At the Load/Save menu, select this option. The second Data sets option toggles between Rows and Columns; you can end up with two totally different graphs depending on which data you want to highlight. We chose Columns. Select Continue.



13 The Editing Screen

Windows

Special graphics windows have to be created on a spreadsheet to prepare the data for the graphics module. Take the cursor to the home position (Cell A1) and press the [DOC PAGE] key. Everything apart from that cell will disappear. To begin selecting the columns you want included in the window, press [F6]. Press [RETURN] to include Column A, place the cursor on Column B and press [RETURN] again to include that, and so on. When you've done it for the last time, press [F6] again. Take the cursor back to A1. Add rows down the sheet in exactly the same way, except you press [F8] where you pressed [F6].

21

22

23

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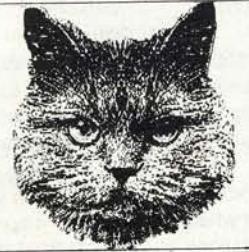
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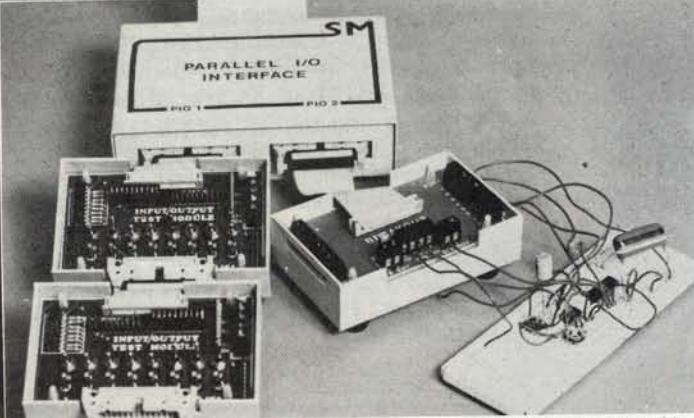
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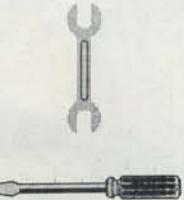
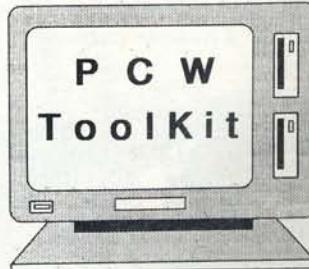
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is a new product for the PCW8256 and PCW8512

It is designed to allow anyone to examine, copy and recover information from damaged or corrupted discs. Although ToolKit is a full-function disc editor, you don't need to be an expert to use it! The manual too is comprehensive but straightforward, and includes features such as a "First Aid" section for quick answers in an emergency.

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COMMS AND GOES

The last of our series on using the Z88 with your PCW: comms, odds and sods

Z88 tips

If you don't use BASIC that much, put your RAM pack in slot 2 rather than slot 1. The Z88 grabs some of slot 1 for BASIC cutting down the amount of space you can use for storing PipeDream documents, but doesn't touch slot 2.

Going cheap

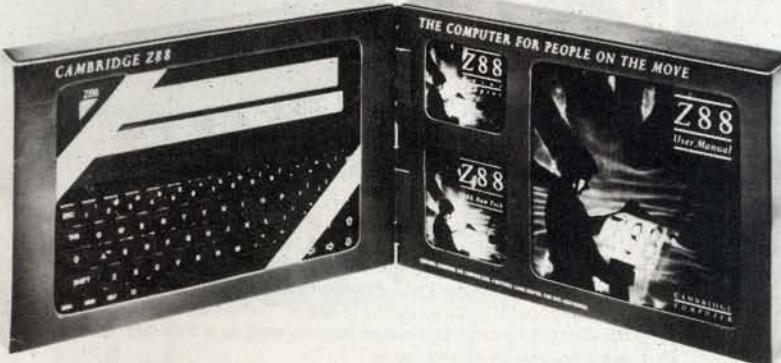
The Z88 is at last being bundled with batteries, extra RAM (128k), a case and an adaptor for £299 from Dixons. Everything you need!

There you are in Hawaii supposedly on a business conference, but surreptitiously writing a travel article as well. You have your Z88 with you and intend to return home to your PCW and transfer your conference report and your article to the PCW.

But then you fall in love with a local and decide you like the place so much it would be nice to stay for a few weeks. Fine, but what about your Z88 work? You don't really want to leave it hanging around in the machine's memory any longer than necessary.

There are two options. Both involve having a modem for your Z88 and someone back home with a computer which can receive the text you send. Computer communications – in a word, comms!

One is to call work and arrange for someone to sit at a computer (which could be a PCW but doesn't have to be) and receive your report or article. They save the text to disc at their end and when you eventually get back home you can transfer it from there to your PCW (how you transfer it if it isn't a PCW is your own problem!).



The Z88 can change your word processing life radically. Usually this is for the better, but before you fall in love with the theory of being able to write text anywhere and pipe it across to the PCW at your leisure, a few words of warning.

DON'T USE RECHARGEABLE BATTERIES. They work fine but when they die, they die quickly – far more so than bog standard alkaline cells. You could turn on your Z88 one time and find everything gone: it has been known. Use the mains adaptor whenever possible.

Battery assault

The figures are these: your Z88 uses 0.8mA when it's off, and about 80mA when it's on. Rechargeables have about 500mAH, alkalines 2500mAH. The upshot, even if you don't care what a mA or mAH is, is that rechargeables last for a maximum of 25 days with the Z88 off down to an hour or two with the machine on. Alkalines last five times longer. So, if you use your Z88 on the train and transfer the work back to the PCW every evening rechargeables might be OK; otherwise stick to alkaline cells.

Never, ever put your EPROM in slot 3 with

Two is E-mail – sending the text to your own electronic mailbox. When you get home you can hook your PCW up to a modem and get that text from your mailbox, 'downloading' it onto disc. You need a subscription to a suitable service.

The disadvantages of all this are cost and time. It will cost you about £200 to get kitted up, plus a few pounds per month if you subscribe to a mailbox service. It will also take time to get to know how things work – which is too complicated to go into here – and sending stuff by E-mail can be fraught with difficulties caused by bad lines. However, if you can get it working, it can do things for you that are otherwise impossible.

What you need

1. A modem. Your Z88 will hook up to any modem but it makes sense to get a pocket one, such as World Port, to pack in your overnight bag. These are the size of a pack of cards but have the full range of features normal modems have – choice of protocols, baud rates and so on. They are advertised widely in mail order and can cost from £100 to £400; if you have a friend passing Hong Kong they can pick one up for you for £50! Pocket modems can also be used with other computers as they have a standard RS232 interface.
2. A cable to connect your Z88 to the modem.
3. A cable to connect your modem to the phone socket.
4. Comms software for your Z88. This is available separately from Wordmongers (0296 437878) so that if you have your own modem already and can get the right cables from somewhere you need only buy this. Otherwise you can get items 1-4 bundled together from Cambridge Computers (0223 312216) for about £150. The latest version of the software, COM88 or ZTERM depending on who you buy it from, has a Prestel interface and can assign those dreadful 20 digit Telecom Gold passwords to 'function' keys, so that [DIAMOND]3 for example returns the sequence 9785662188657648410, saving a lot of mistyping.
5. An RS232 interface if you want to use the modem with your PCW. (c. £60 from any large mail order advertiser in 8000 Plus)
6. If you want to store electronic mail to yourself you'll need a subscription to either Telecom Gold (0800 200 7000) Prestel (01 822 1122) or Microlink (0625 878888). Initial registration, monthly fees and charge per minute of telephone time vary between the three so check. Microlink is a good one to try if you can't be bothered to work it all out, offering cheaper initial fees (£5 registration plus £3 per month) but more expensive 'air time' than Telecom Gold, from whom they subcontract.

You can get 2, 3 and 5 from your local large computer dealer. The third is particularly important if you're going abroad as each country will have their own standard telephone sockets. The standard socket will be good for anywhere in the UK. ■

rechargeables! When they go, which can be without warning, you can find that everything that was there has been corrupted. You have been warned!

The general point to be made is that text stored on your Z88 is fragile. It can easily be damaged or lost. Don't trust it to stay around for more than a weekend; transfer as soon as you can. Keep copies of all your Z88 files on a PCW disc somewhere – diaries, address lists, the lot.

MASTERFILE 8000

FOR ALL AMSTRAD PCW COMPUTERS

MASTERFILE 8000, the subject of so many enquiries, is now available.

MASTERFILE 8000 is a totally new database product. While drawing on the best features of the CPC versions, it has been designed specifically for the PCW range. The resulting combination of control and power is a delight to use.

Other products offer a choice between fast but limited-capacity RAM files, and large-capacity but cumbersome fixed-length, direct-access disc files. MASTERFILE 8000 and the PCW RAM disc combine to offer high capacity with fast access to variable-length data. File capacity is limited only by the size of your RAM disc.

A MASTERFILE hallmark is the provision of multiple, user-designed display formats. This flexibility remains, but now it's even easier. With MASTERFILE 8000 you design your formats "live"; no more questionnaires, just move your format effects around the screen using the cursor keys!

Record updating is even easier than before — just steer your cursor to any field on the screen and then insert/erase/alter as required.

Special options are provided for handling dates and surnames, and column totals can be generated.

All screen work is done graphically — and hence we offer unique panel, box, and ruled line options. Choose the line spacing at pixel resolution — you will be amazed how much clearer 9-pixel lines are than the usual 8-pixels. (Study the picture.) And all this faster than CP/M normally lets you paint the screen! PCW printer functions, under menu control, are provided.

Customer Details and Invoices					
British United Freight			Tel: 0452 8	0: Display Options	
493 Western Avenue			Contact: Mike M	Steer using.....	...#10
Gloucester			Ref: BU	Alter data	...#11
GL9 5JN				Erase data	...#12
12044	20 Aug 87	£235.00	02 Oct 87	Assign to set.....	...#13
12399	25 Aug 87	£98.00	02 Oct 87	First page.....	...#14
12450	01 Oct 87	£305.00	---	Next page.....	...#15
12453	21 Oct 87	£133.00	---	Find key = on.....	...#16
12533	03 Nov 87	£1,004.50	---	Print.....	...#17
12598	10 Nov 87	£355.65	---	Print single record.....	...#18
12703	11 Nov 87	£200.00	---	Erase record.....	...#19
12782	11 Nov 87	£39.20	---	Insert new record.....	...#20
12839	04 Dec 87	£883.55	04 Dec 87	Show resequenced.....	...#21
Totals:		£3,253.90		Rotate format.....	...#22
				Go to search.....	...#23
				Exit to main menu.....	...#24
Date of invoice					
Drive:R File:INVOICES Records:00017 Selected:00009 Key: Format:1					

Keyed files are maintained automatically in key sequence, with never any need to sort. You can have unkeyed files too, where records can be inserted at any point in the file.

Any file can make RELATIONAL references to up to EIGHT read-only keyed files, the linkage being effected purely by the use of matching file and data names.

You can import/merge ASCII files (e.g. from MASTERFILE III), or export any data (e.g. to a word-processor), and merge files. For keyed files this is a true merge, not just an append operation. By virtue of export and re-import you can make a copy of a file in another key sequence. New data fields can be added at any time.

File searches combine flexibility with speed. (MASTERFILE 8000 usually waits for you, not the other way around.) You can even assign subsets of a file into one or more of seven pigeon-holes for subsequent reference or further manipulation.

Megaglomerate Ltd				
Sales Contact : Martin McManic			Mega House	
Telephone : 0245 554321			145-145 London Road	
Reference : MGL			Chelmsford	
Date of last order : 14 Aug 86			Essex CM12 5HG	
Value to date : £31,455.00				
Specification				
Ref	Make	Model	Specification	
C5901	Epson	FX85	100cps 4MLQ 8col	£310
C5902	Epson	FX115	100cps 12col	£410
C5903	Epson	FX116	100cps 12col	£195
C5904	Epson	FX118	100cps 2MLQ 8col	£195
C5905	Epson	FX119	100cps 2MLQ 8col	£435
C5906	Epson	FX120	100cps 2MLQ 8col	£395
C5907	Epson	FX1200	100cps 5MLQ 8col	£395
C5908	Epson	FX1200	100cps 5MLQ 8col	£275
C5909	Epson	FX1200	100cps 5MLQ 8col	£325
C5910	Epson	FX1200	100cps 4MLQ 12col	£225
C5911	Epson	FX1200	100cps 4MLQ 12col	£270
C5912	Canon	SS5	100cps 4MLQ 8col	£240
C5913	Canon	SS10	100cps 4MLQ 8col Colour	£410
C5914	Juki	SS20	150cps 4MLQ 8col	£310
C5915	Juki	SS20	300cps 4MLQ 8col	£320
C5916	Juki	SS20	300cps 4MLQ 8col	£350
C5917	Juki	SS20	300cps 4MLQ 8col	£1,795
C5918	Juki	SS20	300cps 4MLQ 12col	£2,700
C5919	Fujitsu	IX	8 page min 84 graphics	£1,980
C5920	Fujitsu	LDP501	8 page min 84 graphics	£2,580
C5921	Fujitsu	LDP802	100cps 5MLQ 8col	£285
C5922	Canon	Laser		
C5923	Canon	Laser		
C5924	HP	LJ-510		
C5925	HP	Taxan		

FIELD-TO-FIELD CALCULATION is available, using any mixture of terms and arithmetic operators + * / ().

MASTERFILE 8000 is totally menu-driven, fully machine-coded, and comes with example files and a detailed manual. We claim (modestly) that you will not find another filing system with such power, flexibility, and friendliness.

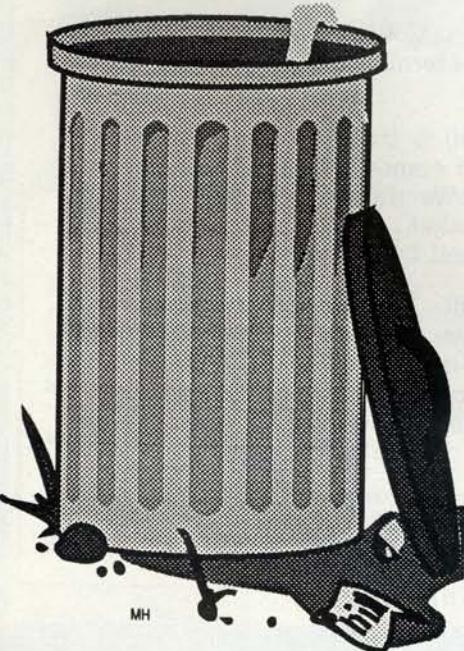
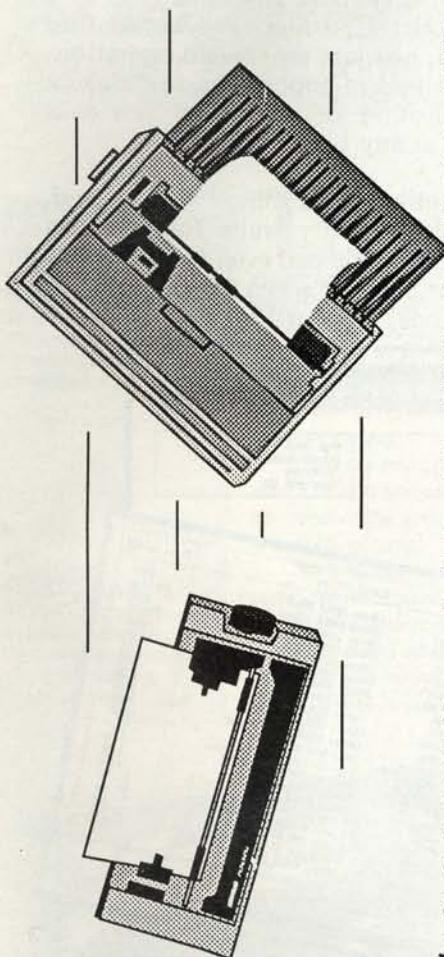
MASTERFILE 8000 costs £49.95 including VAT and P&P to anywhere in Europe. Elsewhere please add 20% for air-mail service. ACCESS/VISA/MASTERCARD orders are welcome, written or telephoned, quoting card expiry date. Make cheques payable to "Campbell Systems".

Our normal response is return of post, 1st class.

CAMPBELL SYSTEMS (Dept 8PL)
7 Station Road, EPPING, Essex CM16 4HA,
England. Tel: (0378) 77762/3

UNHAPPY WITH YOUR PCW's PRINTER?

At last a high quality printer that's as flexible as LocoScript 2. With a 24 Pin Printer and the 24 Pin Printer Drivers Disc from Locomotive Software, you get really high quality printing of ALL LocoScript's characters, pitches etc – even on a PCW9512.



24 PIN PRINTERS ARE GOOD FOR 8000 OWNERS

With a PCW8256 or 8512 you can already print all of LocoScript's characters on the built-in matrix printer. With a 24 Pin Printer "High Quality" printing really will be High Quality! The built-in matrix has just 9 pins – a 24 pin printer not only has more pins, but they are closer together. This means that you get a better result. Most of these printers print in one sweep across the paper – which makes a 24 Pin Printer much faster as well.

24 PIN PRINTERS ARE GOOD FOR 9512 OWNERS TOO

The PCW9512's built-in printer gives good quality results but it is noisy and slow – and it can only produce a small range of characters. You cannot even mix upright and italic characters in the same document. A 24 Pin Printer and the 24 Pin Printer Drivers disc will give you the full range of characters (symbols, accents, Greek, even Cyrillic!), without sacrificing quality.

If you're thinking of getting a better printer, then how about a NEC P6 Plus. We think this is the best price/performance printer around and it's available from us at £549 + VAT. We'll also throw in a connecting cable and printer software FREE! Let us know if you've got an 8000 or a 9512 so we can send the right cable – and remember you'll need a CPS8256 Printer Interface if you have an 8256 or 8512. If your budget is tighter, then how about the NEC P2200 at £349 + VAT – not quite as fast or rugged as the P6, but still exceptional value.

If you've already got a 24 pin printer (such as an Amstrad LQ3500/ LQ5000, Epson LQ series, NEC P2200, P6 Plus or P7 Plus, or a Star NB24...) just add the 24 Pin Printer Drivers disc. For only £24.95 inc VAT you'll get more from your printer than ever before!

Please send me the following products
FOR THE 8256/8512

24 Pin Printer Drivers Disc* £24.95
 NEC P6 Plus & Printer Drivers Disc* £631.35
 NEC P2200 & Printer Drivers Disc* £401.35
 CPS 8256 Printer Interface £49.95

FOR THE 9512

24 Pin Printer Drivers Disc £24.95
 NEC P6 Plus & Printer Drivers Disc £631.35
 NEC P2200 & Printer Drivers Disc £401.35
(* requires LocoScript 2)

I enclose a cheque for TOTAL £

Please charge my Access/Visa card

EXP Date

Signature

Name

Address

Postcode

Please send to Katy Buchan at:



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SOFTWARE**

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Note: all prices include VAT and UK postage
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THE PCW IS DEAD! LONG LIVE THE PCW!

Adrian Wilkins starts a new series on how you can work with a PC and a PCW – and get the best out of both...

The PCW 8256 and 8512 are now three years old, and judging by recent availability problems are still in demand. Whatever Alan Sugar's policy is (and no-one can predict that), it has to be said that the technology around which the PCW series is based is dated. It has an 8-bit processor (modern PC's use 16 or 32 bits), and the capacity of the 3-inch discs is limiting, not to mention their speed. And despite the arrival of new software packages such as LocoScript-II and Mini Office Professional, many users are now seriously wondering whether to take the plunge and upgrade to a true PC.

Why upgrade at all? Well of course, you don't have to. Personal users are probably quite happy to muddle along with what they've got, and even if Amstrad do turn off the supply of PCWs that doesn't mean that all existing machines will suddenly go into catastrophic failure. Indeed one suspects that there will still be 8000's around, live and kicking, in five years' time.

A different set of parameters probably apply for the serious business user. Although the PCW was announced (and is still sold) as a word-processor, the plethora of business-oriented software that leapt to fill the opportunity provided meant that the 8000's quickly fulfilled an alternative role to just WP. But businesses expand, and expansion can mean more data storage, more transactions, more printing – all of which can soon leave you knocking your head against the ceiling. So, in search of more "headroom", your PCW is relegated and down to the computer dealer you go.

The PCs look so young

What do you buy? There are at least 30 different makes of PC, and providing it is truly IBM-compatible the choice is yours. The Amstrad PC1640 is by now one of the least expensive, and this article will concentrate on this machine. There is no point whatsoever in restricting yourself to a floppy-based system, so budget for a hard disk, either the 20 megabytes available as the standard HD system; or if your dealer can do this, a single-floppy drive machine fitted with a 32-megabyte "hard-card". (This is a hard disk mounted on an expansion board that fits into one of the internal slots in the rear of the machine; you lose one and a half slots, but you gain the extra megabytes, and it shouldn't cost more). Go for an enhanced colour display if you can afford it. Spend as much as you can stretch to on the printer (they don't come bundled with PCs), as you pay in proportion to speed and quality. You will very quickly find that anything under 200 characters per second by way of print speed is slowing you down, and many people go for 300 or 400 cps printers. Don't forget that you will need a cable too. And that's all there is to it...or so some would have you believe.

And here is the crunch. It's all different. Wot, no LocoScript? No, there isn't. Neither is there PIP or DISKIT. There's not even CP/M. And horror of horrors, you can't even read your PCW disks; even if you could the programs would be of no use - they are all written for a Z80 processor, not an 8086.

In the microcomputer industry rumours circulate almost as fast as press announcements of new hardware models, and it is a fact that the demise of the PCW has been reported many times over the last year. However as Mark Twain once said, "News of my death has been greatly exaggerated", and PCW supplies continue to be available. Although towards the tail end of 1988 only West German models could be found in the UK, the normal situation is restored for the time being.

Big bad MS-DOS

So where do we start? Well for a start, all programs on a PC run under MS-DOS, the operating system written by MicroSoft for the original IBM PC, and called PC-DOS on true blues. (There are other operating systems, such as Xenix or CDOS; ignore them). MS-DOS provides a hidden layer of software which performs all the input and output (I/O) and disk filing operations, and a set of Commands which in some respects perform similar operations to some CP/M Utilities. The major ones are:

MS-DOS	CP/M
DIR	Directory listing
TYPE	Type a file
"none"	Free space on disk
COPY	Copy file(s)
DEL	Delete file(s)
EDLIN	Editor
	DIR
	TYPE
	SHOW
	PIP
	ERA
	ED

* no direct equivalent. Free space on disk reported at end of DIR listing.

There is no DISKIT under MS-DOS. Instead there is a FORMAT command to preformat a floppy disk, and a DISKCOPY program to make image copies, or a BACKUP utility to save files from hard disk to floppy.

There is no GET or PUT, and SET does something entirely different. The PAPER utility under CP/M has no replacement under MS-DOS, and it is up to the program to drive the printer in the modes required. There's no DUMP or SID, and the normal MS-DOS release contains no HELP command either.

All doom and gloom? Not so, because for every one CP/M utility that is not available, there are two under MS-DOS that are. For example there is a PRINT command that permits a text file to be printed while you are working on something else. And instead of being restricted to just 16 user group per disk, there is effectively an infinite capacity for directories, sub-directories, sub-sub-directories, and so on, all arranged in a tree structure not

The price is right

By the time this page appears in print, major price reductions will have been announced for most Amstrad PCs, and a hard-disk PC1640 for example is now a highly attractive proposition.



"It's hello from me"

unlike a family tree.

Then the familiar SUBMIT facility of CP/M, where you tell CP/M to work its way through a .SUB file, is different too. The .SUB file becomes a .BAT (BATch) file, and you invoke it just by typing its name.

It's all so ... different. But then, can you remember when you first picked up the Amstrad PCW manual? Did you understand much of it? Not a lot! And the manuals are no better with the PC either. But you will soon get the hang of it, and it is easier second time round.

By GEMini

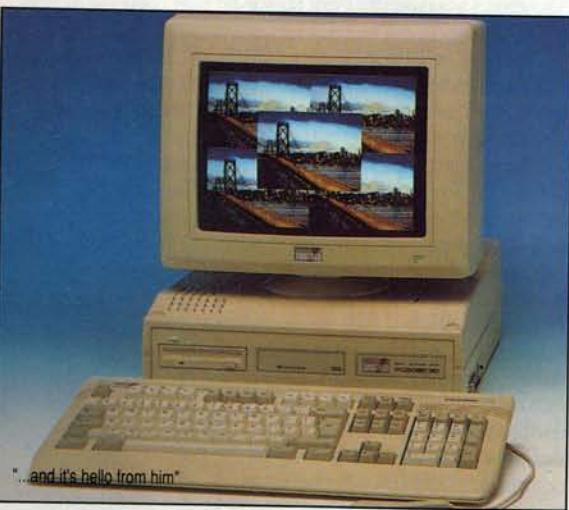
If you become the owner of an Amstrad PC, you will also find included, in addition to MS-DOS, an icon-based system called GEM. GEM attempts to bypass the need for users to learn operating system (i.e. MS-DOS) commands, and works with a series of images - supposedly like your desktop and a set of filing cabinets. Basically you open a filing cabinet (disk), pull out a "folder" (sub-directory), and home in on the program to be run - all using a mouse and never touching the keyboard. In the author's opinion this is a slow and clumsy way of controlling a computer, and does take up an enormous amount of memory (and table space for the mouse to run around on), though it does have its advocates. Included with GEM is GEM-Paint, a DIY artist system which enables the kids to draw the house - complete with garish red brick walls, green roof tiles, black aerosol smoke coming from the chimneys, and yellow ducks on the lawn. Alright if you have the time to spare.

So much for the operating system. And then comes the software...

Lets for the sake of argument divide business applications into the following areas:

- Word processing
- Your own Basic programs
- Accounting and payroll
- Spreadsheets
- Databases
- Desk-top publishing
- Communications
- Vertical software (i.e. everything else)
- Public Domain and Shareware

We will deal with each in turn, although some topics will be held over until the next issue.



Differentiate and Integrate

There are also the suites of integrated packages, most of which contain adequate word processing modules. These are Ability (bundled free with Amstrad PC1512 systems at the time of writing), Ability Plus, Eight-in-One, ABC, Open Access, Able-One, First Choice, Logistix, First Framework, Mini Office Professional... (yawn yawn). By and large these systems also contain databases, spreadsheets, comms, and in a few cases a "slide show" presentation or other goodies.

Word Processing - If you are a born-again LocoScript user, then you are in for a disappointment. There is no LocoScript on the PC (there is a rumour ... watch this space next year). There are however three million other word processors to choose from: Wordstar, MS Word, WordPerfect, Protext, Multiwriter, Tasword, Volkswriter, 1stWord, Gem Writer, Sage PC Write ... New ones make their debut almost every week, and the recently announced TopCopy Plus from Innova Software is worth a look, especially since it looks more like LocoScript and has the ability to run in the background, "importing" screen displays from other software you may be running concurrently. The rule, as ever, is the more money you pay the better product you get.

One factor must be clear by now - there is more choice of software on a PC than any other small computer, and this applies to every other application area we shall look at. The result - mass confusion. The advice must be in all cases, ask for a hands-on demonstration, or seek the advice of a colleague who has already gone down the same route. If you need greek and cyrillic, obtain a cast-iron guarantee from your retailer that the package he is trying to sell you will support foreign characters and symbols, as most of the above won't. If you have a weird and wonderful printer, a Zotto 5-pin dot matrix electrofluorescent intercity carbon imprinter for example, make equally sure that there is support for it in the WP package printer drivers section.

Your Own Basic Programs - The Basic supplied with the PCWs, one which performs very fast and which we have all grown to love, is the Mallard Basic from Locomotive Systems. A wealth of different Basics are available for the PC: BasicA with IBMs, the lookalike GWBasic with some others, and yet again CBasic or QuickBasic elsewhere. With the Amstrad PCs you get BASIC-2, a very much more powerful language with extensive facilities for screen windows, colour palettes, different fonts, "turtles", and graphics. Although it is a "structured language", it does accept line numbers, and many simple Mallard Basic programs will run with little or no change. Basic-2 runs under the GEM environment, and it is harder to make such programs self-starting or auto-booting when you switch on your PC.

Out for a duck?

For those of you firmly wedded to Mallard's JETSAM file handling, there is good news: Mallard Basic is available for the PC also, but it does not come bundled in and you have to purchase it from Locomotive in Dorking. (Their number is 0306 740606). It is absolutely identical (ahem, even contained the same bugs...) to the PCW version, and even your Jetsam files written on the PCW can be read on the PC, assuming you can copy them across (see next month). There are other advantages: previous editions of this organ have been full of letters asking how the PCW basic can be configured to take advantage of the extra memory of the 8512/9512. Answer: you can't. Mallard basic is restricted to the 61K available in the Transient Program Area under CP/M, and of this 61K about half is already taken up by Basic itself. However under MS-DOS, because of the way the 8086 segments its memory, you have a whole 64K available for your program and its data. This means that you can effectively double their size. And if you thought that Mallard was fast on a PCW, wait till you see it in action on a hard-disk PC! Quack quack.

All of which leaves me wondering what to do with the PCW that has served you so well over the last few years. I can only speak for myself. The trusty 8512 has had the accounts and payroll removed, the database and comms transferred off, the spreadsheets whisked away. It has become ... (wait for it) ... a stand-alone word processor. Long live the PCW! ■

- Next month we will look at some simple methods of transferring data between your PCW and PC (without having to buy five-and-a-quarter-inch disk drives for the PCW). In the meantime, if Santa didn't drop a PC down the chimney the New Year sales may still be on.

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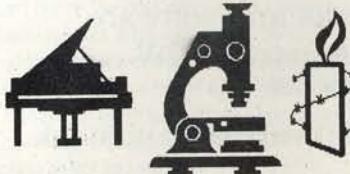
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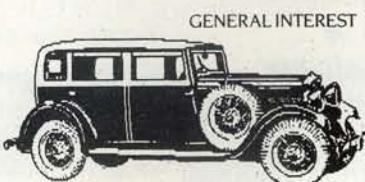


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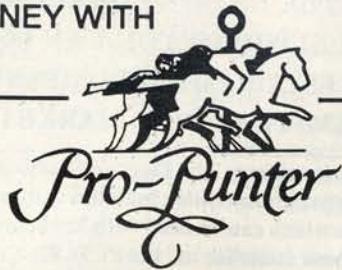
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CATCHING CODE

Beginner or expert? Something for everyone – a Loco tutorial and a Machine Code manual

PCW MACHINE CODE

by Michael Keys

£15 • Spa Associates (0937 843855)

There seems to be an increasing interest in programming the PCW's with machine code, perhaps because only now, more than three years after the machine first appeared, is information becoming freely available on the intricacies of the PCW operating system.

This book has been written using LocoScript and printed out on the standard dot matrix printer. It shows. But on the other hand it has been written by a PCW enthusiast, and that shows too. Keys takes a rather eclectic approach to his subject which is to say that what interests him is covered in great detail, and what isn't, isn't. It's not a tutorial book for beginners, and those new to machine code won't be much enlightened.

Within the 172 pages Keys covers few of the intricacies of the Z80 processor itself but goes into a lot of detail on how to actually make things happen. There are numerous code fragments and several complete routines all with detailed explanations of how they work. This is especially true of the sections on screen access and block shifting.

If you've been wondering how to directly access the ram drive, or create and use sprites in the screen environment, then this is the book you've been waiting for. However it is not intended as a comprehensive guide to CP/M or to the Z80 and the author freely admits as much.

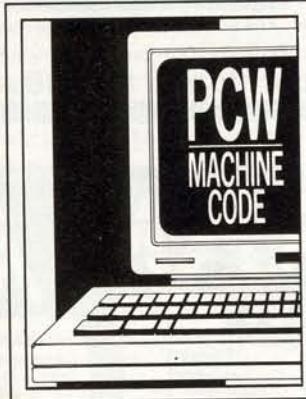
Code of practice

There are some quirks, for instance Keys clearly works from BASIC and prefers decimal numbers to Hex. This involves him in much conversion work. Another quirk is the complete absence of those utilities that make machine code programming easier: no editors, macro assemblers, relocating code or library utilities, he prefers paper and a biro. But if you need such goodies as 32 bit multiplication routines, or want to know how to calculate cosines from lookup tables, it's all here.

This is a 'How To Do It' book, with the emphasis on the practical rather than the theoretical. If you want to expand into machine code programming from BASIC this is a good place to start. For those familiar with machine code but not the PCW this book will provide many valuable insights. Equally fascinating is the insight it gives into the author's mind. Had it been written as a journey of discovery rather than pitched somewhere between a textbook and a cookbook it would have made better reading.

Keys' work is extremely useful and ring bound to lie flat while being used, but is marred by poor presentation and too high a price; if you are seriously into programming the PCW then get it for your CP/M and machine code library.

PCW MACHINE CODE
8000 PLUS VALUE VERDICT 3/5



LOCOSCRIPT/ LOCOMAIL/LOCOSPELL

by ME Bradshaw and BM Garstang

£7.95 • Hodder & Stoughton (01 637 7161)

There must have been some doubt in the minds of the publishers as to whether the world really needed yet another book on How-To-LocoScript; anyway, here it is, covering both versions 1 and 2.

In fact the LocoScript manual, both version 1 and 2, are models of clarity compared with most software documentation. Few people can be expected to persevere with something both difficult and tedious.

Manual writers tend to want to show off the features of the software while users simply want to find out how to create, edit and save a file, this often means being

confronted by several chapters of confusing instructions before finding out how to get the program up and running.

Since the rule is that 80% of users work with 20% of the features it makes more sense to start with the basics and work up to the level of complexity you need to do the job; this is the approach the book takes.

Your mission...

Most of the Teach Yourself LocoScript books published so far have tended to be rewrites of the manual taking a concise (and often opaque) piece of information from the original documentation and expanding it in more familiar language and with easier examples.

The writers are academically inclined and their book has been designed as a course in LocoScript.

The first quarter of the book is little more than a series of screen dumps showing the menus and how to invoke them, not until page 40 are you asked to do anything. From then on you get a series of assignments broken down into tasks.

Each task is explained clearly and precisely beginning right at the beginning with Task 1 – Start up. 1 *Plug into mains supply and press "Power" switch.* 2 *Holding the disc by labelled end, with side 1 to the left, insert it into the disk slot until it clicks into position.* There follows a description of what should happen and a picture of the screen you see.

If you learn best with a structured approach, or have to teach LocoScript to other people, then this book is ideal. There are a total of 38 assignments and if you complete them all you'll be an expert in LocoScript.

The type is large and the information clearly laid out, the illustrations are clear and the book is ring bound to lie flat. At £7.95 it could be worth buying for just a few relevant assignments.

LOCOSCRIPT, LOCOMAIL, LOCOSPELL
ISBN 0 7131 36677
8000 PLUS VALUE VERDICT 4/5

Fools rush in

There are about 25-30 books on LocoScript currently on the market – so, if that's what you want, don't rush out and buy the first you see in your High Street bookstore. There will be several different ones around so you can afford to be choosy; have a look at each one and choose the one that appeals most. As a tutorial the book reviewed here is well above average.



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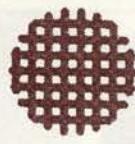
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DOWN THE LINE

Y our esteemed editor (whose name and face keep changing at inexplicable intervals) sometimes suggests that I write more about the seamy side of little software companies – that is, my own. Natural modesty permits me to do this only once a year.

Should you enter the rough world of software marketing, my main tip is: make sure someone else answers the telephone. Being slightly deaf, I have a permanent excuse. My Ansible Information codirector merely has a permanent twitch. Each morning he resolves to answer calls with utmost suavity and politesse; each evening he sends me a despondent report in which (I fear) the words "bastard" and "wally" figure prominently.

Before millions of readers rise up to lynch the entire Ansible staff and plough salt into the ruins, let me hastily add that most callers are just wonderful. As with street litter, grandstand violence and statutory rape, the problem is caused by a minority.

"What sort of minority?" you suspiciously ask. Aha....

Call me

"How do I know your rotten cheap software works? Can you send three evaluation copies?"

Translation: a rip-off artist. Who'd dare go into a bookshop, say "How do I know this novel is any good?" – and demand to take it home and read it before deciding whether to pay? (Software and book copyright laws are the same.)

"Your brochure says your program will do this, that, and that. Will it really?"

"Yes."

"Are you sure?"

"Yes."

"Well, maybe. But will it advise me on diet horoscopes, do family trees for the gerbils and write to my VAT inspector?"

"No, that's not what..."

"Oh, it can't be much good then." (Hangs up.)

Translation: here's someone who believed that stuff about how computers will transform your entire life, for not more than

£12.95.

"You do this program for LocoScript on the Amstrad PCW, right?"

"Yes. It costs a mere – "

"Will it work with my home-made BASIC word processor on a Commodore 64?"

Translation: hope springs eternal in the human breast. Few C64s boast a three-inch disk drive.

"Hello! I'm having trouble with PIP, can I ask you nineteen detailed technical questions?"

"Look, sunshine, it's seven in the morning!"

"I have to get to work early; you should too. Now about PIP...."

"Sorry, can't give our customers technical support for programs we didn't write ourselves."

"Oh, I'm not one of your customers...."

"Ritfim!" (Hangs up.)

Translation: the final expletive is properly spelt RTFM, for "Read the *** manual!"

Nasty business

"This is Megawally Associates Ltd. We're big, we're important, and we're taking no nonsense from you. I ordered your software weeks ago: nothing's come. This is urgent. If it's not on my desk first thing tomorrow morning, there's going to be trouble!"

Translation: a bastard. In ten cases out of nine, this call means, "I told the purchasing people to send an order last week, and although they probably haven't done it yet, I'm going to take it out of you for not clairvoyantly realizing an order was coming."

"This is Megawally Associates Ltd. Our accounts department needs a receipted invoice for your software. Where is it? What are you going to do about it? I want it yesterday!"

"You'll find it in the parcel which at your loud and urgent request we rushed to you last Tuesday."

"Oh, that. I haven't opened it yet."

Translation: a right bastard. Sceptical readers are assured that both Megawally conversations are given almost verbatim.

"Send the stuff now and we'll pay in due course."



A page in
the company
of author and
PCW pundit
David Langford

L
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"Sorry, we send on those terms only to educational, medical and government establishments."

"Look, sunshine, we're one of the four biggest accountancy firms in the world!"

Translation: if so, they could scrape together a few quid from the petty cash, wouldn't you think? "One of the four biggest accountancy firms in the world" still owes us money two years after we were foolishly trusting, but generally the worst payers of all are computer companies. Amstrad were forthright – when they demanded all our software, they made it clear that there'd be no nonsense about payment. Deep financial analysis of this proposed deal convinced us to save the postage.

"I'm going to have the law on you! You've destroyed my computer!"

"What!?" (Symptoms of heart attack, etc.)

"Yeah. I was running your program during a thunderstorm when the power-lines went down and in the dark I spilled coffee into the disk drive and trod on the keyboard, so it's all your fault. What are you going to do about it?"

"Er."

Translation: we are going to take the phone off the hook for the rest of the day while we hide under the desk. Seriously, Ansible has been blamed for disasters resulting from loading/saving files while electrical storms raged overhead... a good time to switch off and drink coffee in another room.

(On the answering machine:) "Please call me back to discuss your software. The number's 876543210. (Pause.) That's backwards, har har."

Translation: some mothers do 'ave 'em. Only space prevents me from revealing much, much more.... (Translation: *That's enough whingeing-Ed.*)

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LISTINGS

Pretty patterns for PCW persons, a pools predictor and a phile paragon program

SPIROGRAPHIX

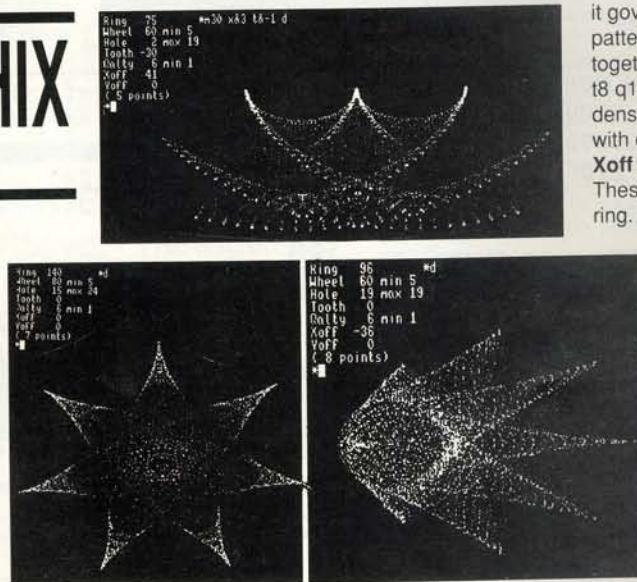
by Richard Cox

Program of the month is undoubtedly this computer emulation of the famous Spirograph game. To see the program in action, simply load it in the usual way and wait while it gets itself sorted out (about 10-15 seconds). The screen will then display some values and a (*) prompt. Just type the letter **d** (for DRAW) followed by [RETURN] to draw your first design, which appears before your very eyes. Now just for practise, make it disappear by typing **e** for ERASE.

The display in the top left corner of the screen shows the values which govern the resulting design, and they can be changed at will, but first, here's what they mean.

Ring and Wheel:

These simply indicate the size of ring (the boundaries of the design) and the size of the imaginary wheel which rotates within the ring. Different combinations of ring and wheel will result in different shapes. To try this, type **w48** and [RETURN]. This changes the wheel to size 48 – notice the display has changed. Now draw again with **d**, and the pattern will be different. The ring size may also be changed in the same way, e.g. type **r105 w60 cd** (cd clears the



screen before drawing).

Hole:

This also governs the shape of the design. Generally, a larger hole number gives a less pointed design – you can try this by typing **c h1 d h5**.

Tooth:

This governs the starting position for the design. Tooth 0 is at the top of the ring, tooth 1 is a little to the right moving clockwise around the ring. Again, try it with **t0 cd t1 d**. Changing the tooth rotates the pattern, as you can see.

Qality (Quality):

This number should be set to between 5 and 15;

it governs the distance between the dots of the patterns – high quality has dots very close together, but it takes longer to draw. Try **c q6 d t8 q10 d** and notice how the second pattern is denser. Remember to set the quality back to 6 with **q6**.

Xoff and Yoff:

These values simply position the centre of the ring. Increasing Xoff (x axis offset) moves the whole shape to the right, decreasing it moves the shape to the left; the Yoff (y axis offset) moves the shape up and down. Try **c x0 d x1 d**.

All the values can be changed by typing the first letter followed by a number. You can input one command at a time, e.g. **'h5'**, or input lots of commands at one go, e.g. **r96 w50 t5 h3 cd h4**.

To add 1 to any value, type the letter, then an ampersand **&** – and then 1, like this, **t&1**, which will increase the tooth value 1. Similarly **t&3** will increase it by 3, **t& -5** will decrease it by 5, etc..

Any of the values may be changed in this way. To stop using the program, just type **f** at the (*) prompt. To get back into CP/M, type **SYSTEM**.

Erasing:

To erase a shape that you have just drawn, use **'e'**. You must make sure that the values are exactly the same as the ones used to draw the shape.

Multi-drawing:

And now the really powerful feature of SPIROGRAPHIX. Clear the screen with **c**, and draw a pattern with values of your choice (e.g. **r96 w72 d**). Now type the following: **m6 h&1 d**. Watch what happens. The program draws six more

```

10 REM           SPIROGRAPHIX program - Richard Cox           148B
20 WIDTH 255: E$=CHR$(27): h$=E$+"H": DEFINT a-z: DEFSNG a,i: bytes=181: aplot=&HC000 23D6
30 IF HIMEM<(&HC000+bytes) THEN PRINT "Not enough memory": STOP ELSE MEMORY &HBFFF 29E0
40 RESTORE: READ x$: WHILE x$<>"*": POKE aplot+j,VAL("&H"+x$): j=j+1: READ x$: WEND 23C3
50 1s$=E$+"X"+CHR$(32)+CHR$(32)+CHR$(31+32)+CHR$(31+16): ss$=E$+"0": cls$=E$+"E"+h$ 1B75
60 r$=CHR$(13)+CHR$(10): PRINT ss$;E$;"u";E$;"q";cls$;ls$;h$;"Setting up..."; 1F4E
70 acv=180/3.141592654#: t=0: h=1: r=96: w=64: x=0: f=-1: comp=1.1: q=6: xf=0: yf=0: m=-1 21D0
80 DIM S!(360),C!(360): FOR j=0 TO 359: a=j/acv: S!(j)=SIN(a): C!(j)=COS(a): NEXT 1F40
90 S!(360)=S!(0): C!(360)=C!(0): ayratio=-1.5: axratio=1.5*2.2: xorg=360+64: yorg=128 203F
100 WHILE NOT x: pc$=cc$: GOSUB 400: INPUT "*",c$: can=0: cc$=c$: GOSUB 120: WEND 2195
110 PRINT ss$: END 07F4
120 REM      decode c$ 07C8
130 p=1: WHILE p<=LEN(c$): 1$=UPPER$(MID$(c$,p,1)): p=p+1: x=1$="F": m=INSTR("DE",1$) 233F
140 IF 1$="R" THEN n=r: GOSUB 210: r=n ELSE IF 1$="W" THEN n=w: GOSUB 210: w=n 2129
150 IF 1$="H" THEN n=h: GOSUB 210: h=n ELSE IF 1$="T" THEN n=t: GOSUB 210: t=n 207C

```

LISTINGS PLUS

designs on top of the first increasing the hole by one each time – with a very pretty result. The multi command is very versatile – again you can change any of the values on the display, try: `r75 w60 h2 t0 x-49 y0 cd` and wait for the pattern to be drawn. Now the multi command: `m30 x&3 t&1 d.`

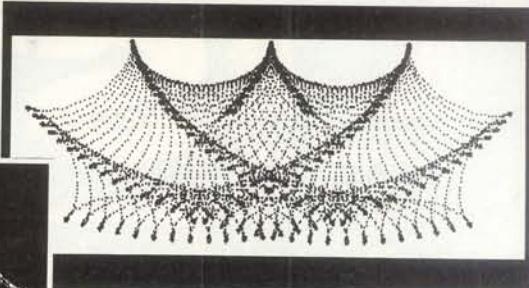
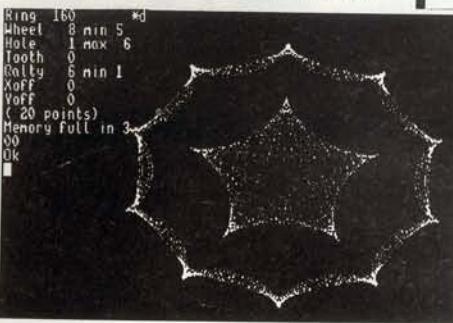
Miscellaneous:

Don't worry about getting near the edge of the screen – lines going off the edge will be clipped off.

Low quality (q5 or q6) often has a beauty of its own with pretty mottling effects in the middle of the pattern – it is also a good bit quicker than, say, q10. To stop drawing at any time, type [CAN] or ALT+H. To repeat a command, type 'a' (for AGAIN) at the (*) prompt. Letters may be typed in upper or lower case – thus t6 & T6 mean the same. Spaces may be used at will –

you can use lots of spaces or none, it makes no difference, except that spaces make the command longer (but that is unlikely to matter).

The program has a few restrictions – the wheel must be smaller than the ring,



wheels have only a limited number of holes (try minus ones), the smallest wheel is w5, and the quality must be at least q1. All the values except Ring, Wheel and Quality may be changed to minus ones, often with interesting effects. To obtain a printout of your masterpiece, press [EXTRA] and [PTR] for a screen dump. ■

```

2 160 IF 1$="Q" THEN n=q: GOSUB 210: q=n ELSE IF 1$="X" THEN n=xf: GOSUB 210: xf=n 2139
170 IF 1$="Y" THEN n=yf: GOSUB 210: yf=n ELSE IF 1$="A" THEN c$=pc$: cc$=c$: p=1 21EC
180 IF m<>0 THEN m=m-2: GOSUB 260 ELSE IF 1$="C" THEN PRINT ss$;cls$;ls$; 1FB0
190 IF 1$="M" THEN GOSUB 210: mc$=MID$(c$,p): multi=n: GOSUB 240 1AD8
200 WEND: RETURN 0917
210 REM get n 0606
220 IF MID$(c$,p,1)="&" THEN p=p+1 ELSE n=0 0FA1
230 n=n+VAL(MID$(c$,p)): p=p+LEN(STR$(n))-1: RETURN 1892
240 REM multi 073F
250 FOR mj=1 TO multi: c$=mc$: GOSUB 400: GOSUB 120: NEXT: multi=0: c$="": RETURN 234D
260 REM draw loop 08F7
270 GOSUB 400: IF NOT ok THEN RETURN ELSE msg$=MID$("DrawingErasing",1+(m+1)*7,7) 2699
280 IF multi>0 THEN PRINT "Multi draw: ": PRINT mj;" of ";multi 1E7D
290 FOR j1=1 TO 11 082F
300 DIM xy((p1-1)*2): PRINT CHR$(13);msg$;": ";11-j1+1; 1329

```

```

2 310 FOR j3=0 TO p1-1 STEP 2 0AA2
320 xy(j3)= xo+r1*C! (ROUND(a1))*axratio+r2*C! (ROUND(a2))*axratio 1AF4
330 xy(j3+1)= yo+r1*S! (ROUND(a1))*ayratio+r2*S! (ROUND(a2))*ayratio 1CF5
340 a1=a1+i1: IF a1>360 THEN a1=a1-360 0C37
350 a2=a2-i2: IF a2<0 THEN a2=a2+360 0BAA
360 NEXT: can=ASC(INKEY$+"#")=8 0BEC
370 IF can THEN mj=multi: j1=11: p=LEN(c$)+1 ELSE pts=(p1)/2: CALL aplot(pts,xy(0),m) 2727
380 ERASE xy 056A
390 NEXT: RETURN 095D
400 REM print details & calc 0D89
410 ok=0: PRINT ss$;h$;E$;"1";CHR$(13);TAB(17);"*";cc$;ls$ 1679
420 m$=cls$+"Ring ####"+r$+"Wheel #### min 5"+r$+"Hole #### max###Tooth ####"+r$+"Qality " 1CB0
430 m$=m$+"### min 1"+r$+"Xoff ####"+r$+"Yoff ####": PRINT USING m$;r;w;h;noh;t;q;xf;yf 244D
440 IF q<=0 THEN PRINT "Quality too low": RETURN 1919
3 450 IF w<5 THEN PRINT "Wheel < 5": RETURN 134A

```

```

4 460 IF w>r THEN PRINT "Wheel not < ring": RETURN 1909
470 noh=4+w/4: IF h>noh THEN PRINT "Use lower hole": RETURN 1E7F
480 a1=90-(360*t/r): a1=a1+(360 AND a1<0): a2=a1: xo=xorg+xf*axratio: yo=yorg+yf*ayratio 27E9
490 r1=(r/2)-(w/2): r2=CSNG(w/2)*(1+noh-h)/CSNG(noh) 1303
500 i1=360/r*((w/r)^comp*10/q): i2=i1*(r/w-1): p1=720/i1 158F
510 l1=w: l2=r: f=2: WHILE f<MIN(r,w) 107E
520 IF (l1 MOD f)=0 AND (l2 MOD f)=0 THEN l1=l1/f: l2=l2/f: ELSE f=f+1 1BAA
530 WEND: ok=-1: PRINT "(";l2;"points)": RETURN 1618
540 DATA FD,21,A0,C0,0A,B7,3E,86,28,02,3E,C6,32,68,C0,4E,23,46,EB,C5,5E,23,56,23,ED,53,B9 1D9A
550 DATA C0,5E,23,56,23,ED,53,BB,C0,E5,CD,30,C0,E1,C1,0B,78,B1,20,E4,C9,DD,21,BD,C0,2A,BE 1D9B
560 DATA C0,7C,B7,C0,7D,E6,F8,1F,1F,DD,77,00,2A,B9,C0,29,29,29,29,29,7C,FB,5A,D0,DD,74 1EA5
570 DATA 01,CD,70,C0,3A,BB,C0,E6,07,4F,06,00,09,3A,B9,C0,2F,E6,07,87,87,87,F6,C6,32,A0,C0 1CF8
580 DATA CD,96,C0,C9,DD,6E,00,26,00,29,29,29,29,11,00,B6,19,CD,AB,C0,EB,7D,E6,07,5F,29,7D 1DB5
590 DATA E6,F8,B3,6F,EB,DD,6E,01,26,00,29,29,29,19,C9,F3,3E,81,D3,F1,3E,82,D3,F2,CB,C6,3E 1EF1
600 DATA 85,D3,F1,3E,86,D3,F2,FB,C9,F3,3E,82,D3,F2,5E,23,56,3E,86,D3,F2,FB,C9,* 1B71

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FILE COMPARE

by Peter Yule

How many times have you looked at a disc directory and wondered whether A:TEST1.BAS was the same file as B:TEST1.BAS, or whether ANON.DOC and FINAL.DOC are the same file named differently? If you have then this program will answer the question.

To use it simply RUN the listing. The program will ask for the name of the first file and then for the name of the file to compare it with. If the files are different lengths then it will tell you so and finish; if not it will begin to compare them.

The program compares the files byte by byte rather than line by line so that any kind of files can be handled. The first time the program finds a difference between the two files it sends the offending information to the printer as well as the screen, all the rest is simply listed to the

If the Solitaire game listed in the December issue is slowly driving you crackers here is one of the many solutions. This one was sent in by Mr T James who freely admits he didn't discover it for himself.

Start with the center peg removed after which the sequence is:

5 to 17; 12 to 10; 3 to 11; 18 to 6; 1 to 3; 3 to 11; 30 to 18; 27 to 25; 24 to 26; 13 to 27; 27 to 25; 22 to 24; 31 to 23; 16 to 28; 33 to 31; 31 to 23; 4 to 16; 7 to 9; 10 to 8; 21 to 7; 7 to 9; 24 to 10; 10 to 8; 8 to 22; 22 to 24; 24 to 26; 19 to 17; 16 to 18; 11 to 25; 26 to 24; 29 to 17

screen. If the files are long ones then stop the process by pressing [STOP].

Once a text file gets out of step all the rest is bound to be wrong, but not so with COM files. The program can be used to find differences in COM files which reflect set up information; where line length defaults are stored in the program for example.

To use the program this way you need SAVE and SID, on side three of the system disc. Load the test program under SID with the command SID TEST.COM. Four numbers will come up but you only need the ones under NEXT and PC, PC should be 0100, write these down.

You will need these numbers since SAVE demand them from you when you run it. As SID is no longer required get rid of it by pressing

[STOP], you will now be back at the prompt.

Next type SAVE and then load the program you wish to investigate. When you have altered the parameters you're interested in, exit the program and you will see SAVE take over. It asks for a filename and then for a start and finish address; that's where the numbers you noted down come in, type them in just as they appeared but make sure you give SAVE a new filename for the new version of the file otherwise it will write all over the original.

You will now have a version of the original program under a new name which you can compare with the original. Any differences should be the parameters you altered and the COMPARE program will show you where they are. ■

```

10 PRINT CHR$(&H1B); "E"; CHR$(&H1B); "H", , "FILE COMPARISON": PRINT 1AAB
20 INPUT "First file: ", A$ 0BF2
30 IF FIND$(A$)="" THEN PRINT CHR$(7); "Filename not found; try again": GOTO 20 22F5
40 INPUT "Second file: ", B$ 0C3F
50 IF FIND$(B$)="" THEN PRINT CHR$(7); "Filename not found; try again": GOTO 40 2306
60 PRINT: PRINT "comparing...": PRINT 1501
70 OPEN "R", #1, A$, 128: OPEN "R", #2, B$, 128: FIELD 1, 128 AS C$: FIELD 2, 128 AS D$ 1991
80 Z%=0: IF LOF(1)<>LOF(2) THEN PRINT "Files of different length": END 21D6
90 GOSUB 310 0549
100 WHILE NOT EOF(1) OR Z%<=LOF(1): GET 1: GET 2 1596
110 IF C$=D$ THEN 230 06EB
120 FOR I%=1 TO 128 06AC
130 IF MID$(C$, I%, 1)=MID$(D$, I%, 1) THEN GOTO 220 1041
140 IF J% MOD 28 = 0 THEN GOSUB 280 0CD7
150 PRINT HEX$(Z%, 4), HEX$(I%-1+128*Z%, 4), 0D97
160 PRINT HEX$(ASC(MID$(C$, I%, 1)), 2), HEX$(ASC(MID$(D$, I%, 1)), 2): J%=J%+1 19FB

```

```

170 WHILE P%=0 057D
180 LPRINT "Sector = ", HEX$(Z%, 4), "Offset = ", HEX$(I%-1+128*Z%, 4), A$; 18C0
190 LPRINT " has "; HEX$(ASC(MID$(C$, I%, 1)), 2), B$; 10E7
200 LPRINT " has "; HEX$(ASC(MID$(D$, I%, 1)), 2): P%=1 11BD
210 WEND 02E7
220 NEXT 02DE
230 Z%=Z%+1 02CA
240 WEND: CLOSE 0864
250 IF J%=0 THEN PRINT "Files identical" 133E
260 END 036F
270 REM this line different 0E32
280 IF J%=0 THEN RETURN 0BA4
290 PRINT "--- Press any key ---" 0DB3
300 DUM$=INPUT$(1) 0939
310 PRINT CHR$(&H1B); "E"; CHR$(&H1B); "H"; "Sector", "Offset", A$, B$: PRINT: J%=1 1E2A
320 RETURN 0503

```

Goodstuff

We are always looking for good, well written and interesting programs for our listings pages. Anything up to 50 lines is acceptable. Of course shorter listings are even better as we can print more of them, longer ones have to be special.

Hard cash and instant fame are awaiting you so start programming and get those listings in to 8000 plus.

The listings should be on a disc along with the documentation. Both the listing and the documentation should be in ASCII and the disc should have your name and address written on it.

Accompanying the disc should be a covering letter explaining what the program does and a printout of both listing and documentation. We will also need a signed statement stating that the program is your own work and hasn't been submitted to anyone else. Don't forget the SAE for its return.

POOLS PREDICTOR

by Basil Pigg

This little gem will help you select a holiday for life in the Bahamas. If you can't decide between Aunt Portia's birthday and your social security number for your pools coupon then type this in. Unlike the

```
run
How many matches
on coupon? 54
How many crosses
? 12
17
16
47
40
51
4
11
52
34
31
37
32
Ok
```

Screensaver

In last month's issue the very wonderful screensaver listing was somewhat spoiled by the omission of lines 54400 through

54430. This was entirely the fault of the art department who thought the page looked better that way. Despite that here are the missing

lines with apologies for any problems it might have caused (like acute anxiety)

54400 DATA CD, 05, 00, A7, C8, D1, 11, 03, 326	0BBF
54410 DATA 00, 18, C3, CD, 29, C5, 21, 6D, 324	0C28
54420 DATA C5, 01, D0, 02, ED, B0, C9, 7E, 47C	0C03
54430 DATA A7, 28, 1B, 23, 5E, 23, 56, 21, 205	0B29

How to type in a listing

Load up Mallard BASIC – to do that, insert your CP/M disc, reset the machine and at the A> prompt type BASIC[RETURN]. Now you see the 'Ok' prompt. Just type in the lines of the listing exactly as they are printed on the page (but not the numbers on the extreme right). Type LIST at any time to print out your typing so far to the screen; if you want a printout to pore over, type LLIST.

Mistakes made before you press RETURN can be corrected with the DEL keys, otherwise you have to use the line editor. Suppose you've made a mistake in line 100; type EDIT 100 and then you can use the cursor keys and DEL keys to correct it. Press RETURN when the line is OK. To delete a line, type its number only and press RETURN.

When you've finished, save the program to a disc by the command SAVE "FRED" (or any other suitable name of eight letters or less). To run the program, type RUN.

Programs rarely run first time, but when BASIC encounters a mistake it tells you where it is. 'Syntax Error in line 60' means a mistake in that line (though the actual typing error may have occurred in a previous line, causing problems in this one). Other error messages can often occur too. Use the EDIT command to correct it.

You can rerun the program another day by loading BASIC up as before and, with the disc on which you saved the program in the drive, typing LOAD "FRED" and then RUN.

program reviewed on page 45 this one works totally at random. You can adapt it for use in any program where you need to select at random a given number of things from a given number of other things without repetition.

In line 10 the program asks for the number of games on the football coupon and creates (initialises) an array of the same size. In line 20 it asks for the number of X's you intend to put against the matches. The RANDOMISE command makes sure the random number generator is reseeded (with a number from the PCW's internal clock) so that you don't always get the same series of numbers! After that the clever stuff starts.

Line 30 begins a FOR – NEXT loop which will go around as many times as there are crosses. It also finds a starting value for lucky% which is of course the variable that holds each lucky number as it is worked out.

Line 40 is a WHILE – WEND loop completely inside the FOR – NEXT loop. WHILE simply tests whether a condition is TRUE ie, not FALSE. Basic considers FALSE to be -1 and everything else returns a value of zero, or

TRUE. To begin with, every subscript of the array is TRUE so that the value contained in crossed%(lucky%) is necessarily TRUE.

The program then goes to line 50 in which Basil merely introduces a delay loop to make his program seem more impressive in operation. For an appearance of more 'thinking' make 2000 larger; to speed things up make it smaller (the line can be removed completely for instant operation).

The program now reaches line 60 for the first time and immediately sets the array item crossed%(lucky%) to -1 (thus making it FALSE, should WHILE take a look) and prints out the value of lucky%, it then goes back to line 30 to loop the loop.

This time through it's possible for the random number generated by INT(n%*RND(1)+1) to be the same as the last one. But if it is, the WHILE loop won't be able to exit (since crossed%(lucky%) won't be true, it will be -1). In this case random numbers are generated inside the WHILE – WEND loop until crossed%(lucky%) is true. The whole process continues until X numbers are generated. ■

```
10 INPUT "How many matches on coupon"; n% : DIM crossed%(n%)
20 INPUT "How many crosses"; x% : RANDOMIZE PEEK (64504!)
30 FOR j%=1 TO x% : lucky%=INT(n%*RND(1)+1)
40 WHILE crossed%(lucky%) : lucky%=INT(n%*RND(1)+1) : WEND
50 FOR time%=1 TO 2000 : NEXT time%
60 crossed%(lucky%)=-1 : PRINT lucky% : NEXT j%
```

1D55
1AC8
117D
1C49
0FB3
15D5

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TIPOFFS

Panning for gold

If you've been dipping into the river of knowledge and only coming up with muddy gravel perhaps you've been standing on the wrong bank. Here are a few nuggets ready washed and waiting. If these shiny shards intrigue you why not send in some of your own for others to admire? Useful ones win £10, the best win £30! Send them to *TipOffs*, 4 Queen St, Bath BA1 1EJ.

This month's gold goes to John Eade of Trowbridge for a method of temporarily commenting a document and to KR Waddington of Gwent for his LocoMail loop tip.

Picture this, and that

It isn't immediately obvious how to use the files produced by Master Scan in Stop Press. For scanned images the technique is first to save them as a Master Paint file, load them into Stop Press by clicking on icon B1, then B4, followed by Execute. To save them again use the normal Stop Press

method for saving Cutouts as detailed on page 26 of the manual.

In fact image files produced by other software can also be used in Stop Press. If you've changed from another package to Stop Press clearly you wouldn't want to abandon all your previous artwork. For Desk Top Publisher files conversion takes a while longer than with Master Scan.



Setting started

If you have upgraded from an earlier version of LocoScript 2 to the 2.16 version you probably wanted to keep your SETTINGS.STD file, especially if it contained paper types you'd laboured long and hard over. However, version 2.16 comes with two fonts (probably the reason you wanted it) and this can lead to some confusion. With 2.16 or above the two fonts supplied are the improved standard font and sans serif.

If you have copied your old SETTINGS.STD onto your new Start of Day disc, LocoScript will not know about the Sans Serif font. To let it know you only have to press [f6] and then cancel. LocoScript will look around and discover the font.

You will now be offered a choice

First the Desk Top Publisher file has to be inverted from the 'Tool Box' and then resaved as a Desktop Publisher file. The next step is to load it into Master Scan and then save it again as a Master Paint file after which it can be treated as above.

Bob Werret
Chippingham

dBasing – the language

A minor irritation of dBBase II for any environmentally conscious user is the program's insistence on ejecting a page before printing with a CMD file in order to assure itself that it is at the top of a page, it does this even with continuous stationary.

To avoid condemning trees to a pointless death you need to issue a few extra commands before telling the CMD file to use a particular DBF file to produce reports.

Begin the CMD file with the instructions to print a page of one line with the line spacing set to 0/72 inches apart so that dBBase knows it is at the top of the page. This is done as follows:

```
set print on
set format to print
??
chr(27)+chr(64)+chr(27)+chr(65)+chr(128)+chr(27)+chr(67)+chr(1)
?? chr(27)+chr(64)
```

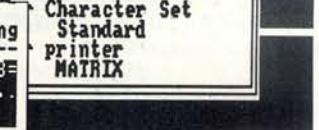
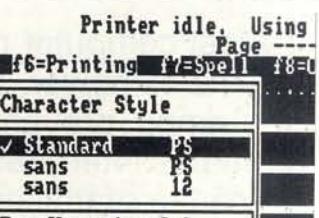
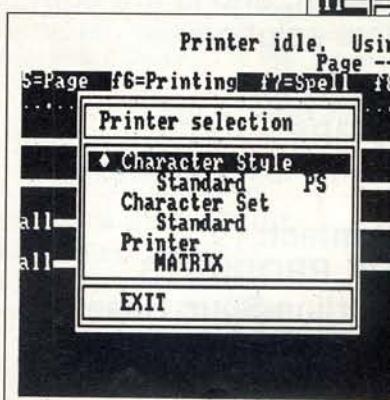
The long sequence resets the printer, sets the line spacing to zero and then sets the page length to one line. After all this you need to reset the printer to return to the default settings. With these lines in place you need never waste another tree.

Hans Hoffbauer
Norwich

Top key tip

If you regularly need to write text containing some of the more exotic characters LocoScript is capable of producing, for example with the Cyrillic supershift, or simply require the occasional Greek letter for maths work, it can be difficult to

between saving the updated SETTINGS.STD file to disc or leaving it until later. If you don't save it then every time you start up the same procedure will have to be



[Are your settings correct? Find out via the [f1] menu and Document setup. [f6] will now let you examine the currently available options. From the file manager you can alter the current Settings.std]

gone through to give you access to the second font.
M G Harman
Cambridge



caption: The key to successful types

remember exactly where the keys you need are.

One answer is to use the Kador keyboard overlay, advertised in 8000 Plus regularly, and simply place a piece of paper with the appropriate character or symbol written on it into the keytop cover before placing the cover over the keyboard.

T Dukes
Dereham
Norfolk

Super saver

If you regularly run out of memory when using SuperCalc 2 on the PCW 8256 there is a way of saving 14k both on disc and drive M (though your spreadsheets themselves can never be bigger than 31k). The trick is to do away with the help file.

Of course, SuperCalc 2 gets sulky if it can't find its help file and

LETTERS. Insert a CP/M copy disc, run up CP/M and at the A> type PIP[RETURN]. At the asterisk insert your LocoScript disc and type

M:=A:LETTERS.GRP[RETURN]. Insert your SuperCalc copy disc and type at the asterisk
A:SC2.HLP=M:LETTERS.GRP[RET URN]. SuperCalc can now be run as normal.

Since the Group names in LocoScript are files of 0k all you actually have on the SuperCalc 2 disc is a directory entry for the help file and no actual file. As the help file was 14k that much space is saved and the same again if you normally work from M. If you should accidentally hit the ? for help then SuperCalc 2 merely mutters something about the help file not being installed and carries on with no harm done.

Ann Davidson
Midlothian

SuperCalc2 AnswerScreen Initial Character Meanings:

/ -- Starts a command entry.
" -- Starts text entry.
, -- Starts Repeating Text entry.
= -- Specifies a cell to jump to.
! -- Forces recalculation.
& -- Puts cursor in other window.
& -- Resumes Execute (.XQT) file control.

Four arrow keys move the Spreadsheet Cursor.
Four CTRL+key combinations also move the cursor:
CIRL/E CIRL/X CIRL/S CIRL/D
UP DOWN LEFT RIGHT

Any other character starts formula entry.

Now you see it

SuperCalc2 AnswerScreen

File SC2.HLP not installed.

Now you don't

won't work so it's necessary to fool it into thinking the file is still there. What you want is any old file called SC2.HLP, but for maximum space to be left use a LocoScript group name for this. They have the odd property of being files 0k long!

Suppose the name of LocoScript Group 0 on a disc is

Pounds right to me

The fact that the printer will often turn a # sign into a £ sign can cause some confusion, especially when printing out BASIC listings or demanding money from the Bank Manager. The reason for this is that the pound sign is not part of

No comment

There are occasions when you need to comment printed matter even though you don't want the comments to appear in the final version of the document. One example might be when a report is being prepared by more than one person in an organisation. Under these circumstances the first draft of the report could well need comments scattered through it to elucidate certain sections, point out areas that need further investigation or just to pass on notes concerning others who will work on the document.

All these comments would normally have to be written on a separate sheet and the various areas the comments refer to indicated in some way. This can be confusing and untidy but there is a way to include them in the relevant part of the document yet not print them in the final draft. 9512 owners, or 8000 owners who have bought LocoMail, have the answer in the LocoMail comment command.

Comments look like (+Mail); This must be checked with Taylor from Leatherwear before going out (-Mail) where the semi colon is obligatory. When this is

printed out the (+Mail) and (-Mail) codes do not appear but the comment appears in full just as it does during normal editing.

To leave the comments out it is necessary to use the Fill option from the Disc Management screen. The comments will be stripped out and then the document can be printed as usual.

To automate the process to some extent set up two phrases:

(+Mail) [RETURN]; <
[RETURN] > (-Mail)

These phrases will put your comments in on their own line to make them more obvious, like this:

<this is a comment>

To make a new phrase mark out the text by pressing [COPY] at the beginning of it and then again at the end. You will be asked which block or letter to use, perhaps R for remark and T for return. Now a simple [PASTE]R will insert the phrase wherever you need to use it. These phrases can be saved to disc from the actions menu [f1], and will then be available every time you turn your machine on.

John Eade
Trowbridge
Wiltshire

ADDRESS /COMMENT.DOC Editing text:
Printer idle, Using A:
Layout F1=File F2=Layout F3=Style F4=Size F5=Page F7=Spell F8=Options EXIT
INTERNAL CIRCULATION ONLY
Exhaustive analysis of the books of Apex Advertising has revealed certain inconsistencies between their stated financial position and the real market worth of the company.
The main justification for acquisition of the company is the deal they are negotiating to promote the soft drink Hokey Cokey in the Middle and Far East, said to be worth upward of fifteen million dollars over three years.
The main justification for acquisition of the company is the deal they are negotiating to promote the soft drink Hokey Cokey in the Middle and Far East, said to be worth upward of fifteen million dollars over three years.
(+Mail) (Sorry - they think the far east is located in (+Mail)
Under the circumstances I think we should leave them to stew a bit and then come back with a much lower offer.

The commented document during editing

ADDRESS /COMMENT.DOC Fill document.
Printer idle, Using A: M:
Layout F1=File F2=Layout F3=Style F4=Size F5=Page F7=Spell F8=Options EXIT
INTERNAL CIRCULATION ONLY
Exhaustive analysis of the books of Apex Advertising has certain inconsistencies between their stated financial position and the real market worth of the company.
The main justification for acquisition of the company is the deal they are negotiating to promote the soft drink Hokey Cokey in the Middle and Far East, said to be worth upward of fifteen million dollars over three years.
We have not been able to confirm this.
Under the circumstances I think we should leave them to stew a bit and then come back with a much lower offer.

After the fill the comments disappear leaving an empty line to separate the paragraphs

the ASCII character set, not so surprising since ASCII is the American Standard code for Information Interchange.

To make the # sign print out as a #, run BASIC and after the Ok type LPRINT

CHR\$(27)+"R"+CHR\$(0) then [RETURN]. Now type LPRINT

CHR\$(27)+"d" [RETURN]. It is important to keep the case of the letters in quotes as shown. Now all future output to the printer will put a # mark on the paper wherever one occurs in the listing.

A Bilbrough
Malvern
Worcestershire

The terminator

The need for user input when employing loops in LocoMail can be completely eliminated by the use of a *sentinel* record in the datafile.

Take the example of an expense account file with fields for date, name, and amount. The first record will be the normal pattern record required by LocoMail followed by all the real records. However the last record will have the name field set to a name which wouldn't normally occur.

Now you set up the mail merge document. It needs a variable which you can call num set up: (+Mail) num=1 (-Mail) – the loop will end with: (+Mail) # name = "Benazir" :<:num=0:>(-Mail).

To enter the loop you need to write (+Mail) @num%loop(-Mail) where it is required in the document.

```
A:ADDRESS /LOOPTIP.DOC Editing text.
Layout 1 Pi12 LS1 CR+0 LP6
f1=Actions f2=Layout f3=Style f4=Size f5=Page f7=Spell f8=Options EXIT
name
amount
date
-----
David
£14.50p
14/12/88t
-----
Richard
£3.90p
1/12/88t
-----
benazir
t
-----
Robe
£4.60p
22/3/76t
-----
A sample datafile – only entries up to benazir will be printed
```

```
A:ADDRESS /LOOPTIP.MAS Editing text.
Layout 1 Pi12 LS1 CR+0 LP6
f1=Actions f2=Layout f3=Style f4=Size f5=Page f7=Spell f8=Options EXIT
(+Mail) num=1 (-Mail)t
All the people who owe me moneyt
(+Mail) loop=0
(+Mail) num+(-Mail)t
(+Mail) name=(-Mail)t
(+Mail) amount=(-Mail)t
(+Mail) date=(-Mail)t
(+Mail) $+(-Mail)t
(+Mail) # name="benazir" :<:num=0:>(-Mail)t
(+Mail) num%loop(-Mail)t
A sample datafile – only entries up to benazir will be printed
```

The master document showing the loop structure and tests

The program will continue to print out the data file up to the record before the one containing the name field with *benazir*, at which point it will stop. This can be further improved by adding the record number to the printout with (+Mail) num+(-Mail) so that each printout has a page number attached. Now LocoScript can go straight to any entry in the data file that needs amending by using the goto page feature.

K R Waddington
Nantyderry
Gwent

Block move

You can change a LocoScript group name but you can't erase it to get back to having it called 'group 0' or whatever – unless you do the following.

From the disc management

screen select erase – ([f3] in LocoScript 2, [f6] LocoScript 1) – and when asked for the name of the file to erase enter the name of the group plus a filetype (the three letters after the full stop) of GRP, and move the cursor down to the group name and enter it as normal.

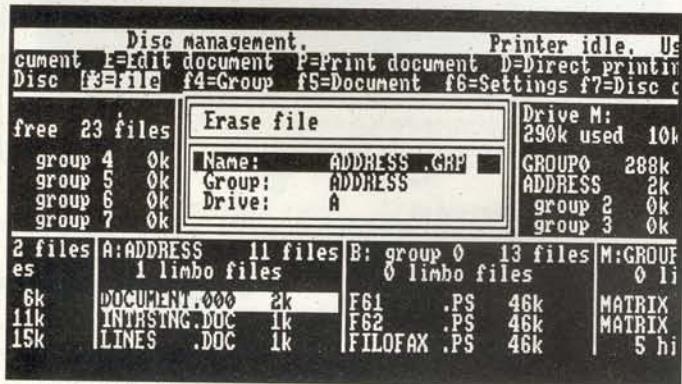
After a little whirring the group name will disappear from the top of the column to be replaced with something like group 1, or group 0.

The next step is to 'show limbo files' with [f8] whereupon the name of the group which you erased will appear again as a file of 0k. This has to be erased once more.

Of course the group name can be erased in one go from CP/M with the command ERA A:ADDRESS.GRP (or whatever the name is) since CP/M doesn't put anything in limbo.

Ian Woodland
Holbury
Hampshire

discs contain files with the same names. This is no problem on the 8256 or the 8512 since the discs are intended to be used from the top drive. On these



Select erase and give the group name plus the filetype GRP

Double trouble

You can play both *Guild of Thieves* and the *Pawn* on a 9512 despite the opinion of 8000 Plus to the contrary. The problem with these games is that both sides of the



Pawn to disc B

The weekly...

The trouble with trying to write an ad for New Computer Express is there are so many good reasons to buy it you don't know which to mention first.

Should it be the **spectacularly low cover price of 48p?**

Or the fact that because it comes out **every week**, it's bang up-to-the-minute on news and reviews?

What about its remarkable **buyers' guides** packed with **detail and fact-backed opinion?**

Or its **crystal clear** series of articles aimed at computing **beginners?**

Perhaps it would be better to start with the point that each issue includes a special **info-**

crammed section dedicated to **each** of the main computers.

Not forgetting the magazine's **dynamic, modern layout.**

Or its string of remarkable news **exclusives.**

Or its **mischievous** sense of humour.

Or its **brash, exciting approach** to all things computing.

Or its ad pages packed with the **latest bargains** (and made

irresistible by the magazine's unique discount voucher scheme).

The fact is, it's dangerous to start anywhere with New Computer Express. Once you do, you're **hooked for life.**

Where to Buy

New Computer Express goes on sale every Thursday in all leading newsagents. In case of difficulty you can get hold of the latest issue by sending a cheque for 75p (inc P&P) to Express Copies, Future Publishing Ltd, Somerton, Somerset TA11 7PY.

Save £££££££!

Each issue of Express includes a page of fabulous money-off vouchers. These allow you to save a fortune when ordering from advertisements inside the magazine – and your choice of goods isn't limited to specific items. You can make savings on any order from participating advertisers.

What readers say

"I congratulate you on releasing such a +%*!@ brilliant mag."
Ronni Stirling, Glasgow

"Your competitors are doubtless quivering in their snow-boots. Your magazine is infinitely superior. It's suddenly worthwhile getting out of bed on Thursdays again."

Don Howard, Croxley Green, Herts

"Our warmest congratulations on the first issues of New Computer Express. We have immediately cancelled our long-standing order with *****. It will be interesting to note how long you can maintain your unbelievable price of 48p."

H J Mueller, The Adventure Club

"Yours is by far the best weekly computer magazine on the market."
Roger Davis, Southampton

Only 48p!
Issue 5 • Dec 10 1988

CRASH! Adult game rocks city - page 3
NEW COMPUTER EXPRESS
First news, first reviews - every week

Save £15 off
BARGAINS - see page 49

First sight of MGT's new computer - page 1

SINCLAIR PC 200 FIASCO

On sale without manuals, operating system, monitors and games • Full story page 2 • Analysis page 11

So what is UNIX?

All you ever needed to know (but were too afraid to ask) - page 23

PUBLISH ON YOUR MICRO!

A friendly guide to desktop publishing - page 17

R-TYPE

Power-packed ST version blasts in - page 11

Pixel Picasso!

The country's most talented computer artist reveals his secrets - page 44

Charts 3 • Letters 13 • Tech Test 31 • Entertainment 32 • Beginners 41 • Tops 43 • Vouchers 49 • Columns 52 • Job Ads 60 • PSs 62

...that's taken
computer
users
by storm

machines the disc can only be read from one side at a time so the names can be duplicated; not so the 9512 which only has the higher capacity drive. When CP/M sees this strange disc with repeated file names it gets very confused.

The solution is to copy each side to a different 720k disc and change them over when prompted by the program. Of course this wastes considerable amounts of disc space but some of it can be reclaimed by using the two discs for more than one game.

Heather Lees
Witham
Essex

Jack in the box

When working with blocks in Protext you often find you are in the wrong 'mode' - box or normal - and after marking out a block you see that it sets itself out as a box when you require it marked out as normal (or vice versa).

You don't have to erase the block markers, change mode and start again. Just press [ALT]B to change mode; the markers automatically re-arrange themselves.

Generally, in fact, blocks are quite elastic; you can add text to or delete from a block already marked out and Protext won't mind at all.

Basil Pigg
Devon

General information

Not all tips have to be specific. Here are a few examples of Good PCW Practice:

1. Always, always, always keep backups - ie. copies - of your data. Every night when you finish work, copy all the files which have been changed from your work disc to a copy disc without fail. A disc costs you a couple of pounds; recovering data from a corrupted disc - and they can fail without warning at any time - takes a lot of hassle, time and money, possibly £50 or £100. So don't be made to look stupid, keep backups. Always.
2. Never work with LocoScript files longer than about 15k. Long files are slow and cramp your disc, because you need at least as much space free on the disc you're working on as the length of the file. So if you start to edit an 86k file on an otherwise empty 173k disc you will run out of space by adding just a few hundred characters!
3. Don't switch your PCW on and off repeatedly. If you want to reset it, do it with [SHIFT][EXTRA][EXIT] together. In fact the best thing is to switch it on in the morning and leave it on until you switch it off in the evening. A PCW only uses as

much power as a light bulb.

4. Don't try to take discs out of the drive when you hear the disc motor whirring and never when the red light is on or flashing. You could corrupt the data on the disc. Also don't switch the PCW on or off or press [SHIFT][EXTRA][EXIT] with discs in the drive.
5. If you leave your PCW on without working on it for a while, eject the discs. This is just in case a power surge or power cut happens and corrupts your disc. Unlikely, but it has happened!
6. Dust your PCW regularly with a dry cloth. Discs are pretty robust but a disc case keeps them organised and gives a bit of extra protection. Keep them away (more than a couple of feet) from anything remotely magnetic, such as a telephone, which can corrupt discs underneath it when it rings!
7. And finally, don't work for more than an hour at a time at the keyboard. Taking a ten minute break every hour is a rest for your eyes, your head and your wrists - and it's less anti-social than spending all night in front of the screen!

Helen Schroder
Hull

the disc with the BACKUP.SUB file on and type M:=A:BACKUP.SUB.

Type [STOP] to get the A> back, insert your disc to be copied in A and your backup disc in B, and type M:[RETURN] followed by (at the M> prompt) the line SUBMIT BACKUP[RETURN].

Richard Baguley
Stratford

Protext to LocoScript

To insert a Protext file into a LocoScript document you want the text saved as simply as possible, ASCII for instance, or else you get spurious Greek letters all over the place.

Unfortunately if you use the PRINTF command you end up with returns at the end of every line when the text comes into LocoScript, meaning it won't format properly and can't be edited without removing all the returns using [EXCH], which is tedious. 'Prog' mode is no good either.

Here's what to do. Write your text in Protext as normal. When you've finished go to the top and put in a > at the top on the extreme left. Then press [ALT]G followed by C5000. Type a single R followed by

[RETURN], then go into command mode and FORMAT.

Save this document and insert it into LocoScript using 'insert text' ([f1] Loco 2, [f2] Loco 1). Now the text will format itself correctly to LocoScript's margins.

Basil Pigg
Devon

Seek and ye shall wait

presumably any earlier version) has a bug which can make it run astonishingly slowly when using the SEEKNEXT function on a file with a large number of identical key values. With a thousand duplicate keys it can take Basic more than a minute to locate the next record. The solution is to limit duplicate keys to no more than one hundred or so. If you must have more then the only solution is to approach Locomotive for an upgrade to version 1.45 in which the bug has been fixed.

Adrian Wilkins
Bristol

Helen Schroder
Hull

the disc with the BACKUP.SUB file on and type M:=A:BACKUP.SUB.

Type [STOP] to get the A> back, insert your disc to be copied in A and your backup disc in B, and type M:[RETURN] followed by (at the M> prompt) the line SUBMIT BACKUP[RETURN].

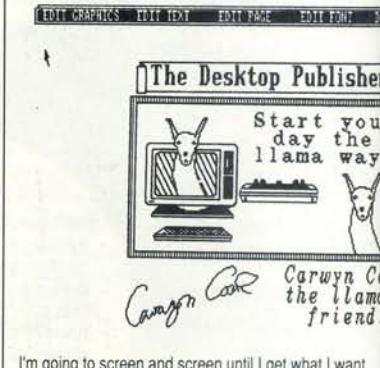
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I'm going to screen and screen until I get what I want

Artistic licence

screen of The Desktop Publisher or feel it doesn't adequately reflect the kind of thing you're into right now why not replace it with something more artistic?

The first job is to design your new screen. Remember that it shouldn't take up more room than the screen area of the DTP graphics editor. Now save it on side 1 of your DTP work disc, not the original. Suppose it is called WOMBAT.GRF.

Exit from DTP to CP/M and type ERA TITLE.SCR[RETURN] followed by REN TITLE.SCR WOMBAT.GRF[RETURN].

When you start up the Desktop Publisher next time it will show your new screen.

Carwyn Cook
Tanteg
Pontypridd

Copy cat

Backing up LocoScript discs from LocoScript is extremely tedious, and if you want to back up A discs to B discs DISCKIT is out of the question. This leaves PIP. Since PIP is used in CP/M a SUBMIT file can be constructed to automate most of the process. The submit file must copy all the files from group 0 on A to group 0 on B followed by group 1 and so on until it reaches group 7; you don't need to back up groups 8 to 15 as these aren't used by LocoScript except to store limbo files.

Make a LocoScript document consisting of the lines below. Save it and make an ASCII file ([f1] Loco 2, [f7] Loco 1 in the disc manager) in group 0 called BACKUP.SUB.

```

PIP
<B:[G0]=A:.*.[G0]
<B:[G1]=A:.*.[G1]
<B:[G2]=A:.*.[G2]
<B:[G3]=A:.*.[G3]
<B:[G4]=A:.*.[G4]
<B:[G5]=A:.*.[G5]
<B:[G6]=A:.*.[G6]
<B:[G7]=A:.*.[G7]
<

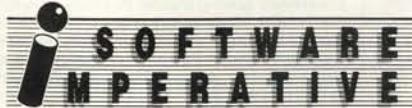
```

The backup process is as follows. Every time you want to copy all the files from an A disc to a B disc this is what to do.

Reset the machine and insert your CP/M copy disc. At the A> prompt type PIP[RETURN]. At the asterisk type M:=A:PIP.COM[RETURN] then when the asterisk reappears M:=A:SUBMIT.COM[RETURN] then when the asterisk reappears insert

“An extra PCW for just £25*”? Well, almost.

FLIPPER splits your PCW in two. You can run Locoscript 2 in one half and a CP/M program in the other. Or you can run two CP/M programs, one in each half. Either way, you can **FLIP** from one half to the other in under 3 seconds, any time you want – and you won't lose your place when you do. In fact, it's exactly like having an extra PCW for just £25. Apart from the 5p change, that is.



FLIPPER. Only £24.95, actually

* 8000 plus, October 1988

Please send me **FLIPPER** for my:

8512 [] • 9512 [] • 8256 with 256K extra memory []. I enclose a

cheque / postal order for £24.95 made payable to Software Imperative

(Price includes UK postage and packing. Sorry, **FLIPPER** does not run on an unexpanded 8256)

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.....

Address
.....

Postcode

Mail this coupon to:

SOFTWARE IMPERATIVE, ASHLEIGH HOUSE, BUSSAGE, STROUD GL6 8AZ



THE

GOOD SOFTWARE



FILE

These pages provide a comprehensive guide to the Amstrad PCW software. Published in three monthly parts, this time it's the turn of Word Processors (including Desk Top Publishers), Accounts/Payroll packages and Utilities. We've set out to cover every important piece of software we could lay our hands on, and to give you enough information to decide whether they are suitable for you.

All software will run on both the 9512 and the 8000 series machines, though the former's daisywheel printer

cannot print graphical output.

The selection isn't comprehensive, but the software listed here represents what we think is the best of that currently available.

As well as a brief summary of what they do, the main Plus and Minus points for each program are listed – Pluses have a ▲ by them, Minuses a ▼. Those we think are particularly noteworthy have a corner flash. Have fun window shopping!

WORD PROCESSORS

The PCW already comes bundled with its own word processor, so you might not think of buying another one as a priority. In fact, whatever you may have read in some magazines, LocoScript is a pretty good wordprocessor and you won't find many editing and layout functions it doesn't have. Its principal disadvantage was its slowness, but the release of LocoScript 2 has lessened that.

There are advantages to be had in changing. LocoScript cannot run from CP/M, and this may cause you trouble.

Many other word processors have a built-in 'mailmerger' program. This is a way of doing bulk mailshots; you store your address list in a data file, and write a letter with labelled gaps where you want the names and addresses to go. Then, when you print, the letter comes out once for each address, with the information in its correct place. Also, you often get a spelling checker thrown in free – look for one which allows its dictionary to be modified so you can include non-American spellings.

One thing's for sure, whatever word processor you buy it will be totally different to operate from LocoScript. The PCW keyboard is custom built to run it, and if you change you may have to get used to some arcane choices of keys to do even simple operations. Also, you won't be able (very easily) to use all the printer styles that you can in LocoScript, though there will be enough to get by with.

PROTEXT/POCKET PROTEXT

£59.95/£39.95 • Arnor • 0733 68909

The best CP/M wordprocessor. Very fast at moving around large files, and packed with features. Works with key combinations rather than menus, but uses LocoScript keys too. Comes complete with a good spelling checker, a lightning fast word counter and a very powerful mailmerger. 'Pocket Protect' is a stripped down version – essentially the same word processing features, but no spell checker or mailmerger, and lacking one or two incidental facilities like two column printing. Specify which machine you have when buying.

PLUSES - MINUSES

- ▲ Complete with spelling checker/word counter
- ▲ Packed with features, eg. calculate facility, text editor for writing programs, 'print to screen' option etc.
- ▲ Lets you work with two documents at once
- ▲ You can do all of CP/M's functions without leaving Protect
- ▲ Very fast at moving around, doing exchanges and so on
- ▲ Extremely powerful and flexible mailmerger
- ▼ Forces you to learn another new set of control keys to use it
- ▼ Printing labels is virtually impossible
- ▼ Not as slick as LocoScript in its printer controls

ANSIBLEINDEX

£29.95 • Ansible Information • 0672 62576

Takes a LocoScript file and compiles an alphabetical index with page numbers from all the words marked. You mark the word to be indexed by using LocoScript's (+RV) code. The price includes the AnsibleCheck word counter/proof reader program too, which is also available separately at £14.95.

PLUSES - MINUSES

- ▲ LocoScript documents don't have to be converted to ASCII
- ▲ Can 'invert' phrases, eg 'Smith, Fred' or 'Fred Smith'
- ▲ Can produce a single index over several different files
- ▼ Output index not LocoScript document – must convert it
- ▼ Can only index words appearing literally, not general topics

EASY LABELLER

£34.44 • M.A.S.S. • 0603 630768

Labelling program which stores your names and address list and will print out in label format selected items from it.

PLUSES - MINUSES

- ▲ Useful options like printing out current date
- ▲ Good search facilities
- ▲ Range of printing options will fit most stationery
- ▼ Data needs an entire disc to itself
- ▼ Data entry is slowed by constant returning to main menu

LOCOSCRIPT 2

£24.95 • Locomotive Software • 0306 740606

As bundled with new 9512, the new version of everyone's first word processor. If you know how LocoScript 1 works, you'll have minimal relearning to do, and it puts right (almost) all the defects of the old version at a rock bottom price. Greek and Cyrillic alphabets, and version 2.12 even lets you define up to sixteen characters of your own design.

PLUSES - MINUSES

- ▲ 'Find page' command makes moving around faster
- ▲ Superb range of foreign accents and symbols available
- ▲ Can now drive daisywheel and other printers
- ▲ Has DISKIT's formatting and copying built into it
- ▲ New 300-page manual
- ▼ Mailmerger and spelling checker not included
- ▼ Inconvenient for regular CP/M users
- ▼ Still no word counter!
- ▼ Still slow at Find, Exchange and scrolling

LOCOSPELL

£19.95 • Locomotive/Amsoft • 0306 740606

The ultimate spelling checker for LocoScript users. It is run as a simple menu choice while you are editing a document normally, and you can check either an entire document or only a paragraph. When it finds an error, it suggests a correction. Reasonably fast, given LocoScript's inherent sloth.

PLUSES - MINUSES

- ▲ Runs totally from within LocoScript
- ▲ Can do small sections of a file
- ▲ Suggests alternatives for misspelt words
- ▲ Reformats the text as it makes corrections
- ▲ Provides the much-missed LocoScript word counter

THE GOOD SOFTWARE FILE

WORD PROCESSORS • ACCOUNTS/PAYROLL

- ▼ Can't remove spellings you don't like
- ▼ The manual gets bogged down sometimes
- ▼ Slow at scrolling the dictionary window

LOCOMAIL

£29.95 • Locomotive/Amsoft • 0306 740606

As a mailmerger for LocoScript, it's difficult to see how anything could be better than this. It runs directly from LocoScript, and can process any LocoScript commands. Has many advanced features and is highly recommended for all LocoScript users.

PLUSES • MINUSES

- ▲ You don't have to run it from CP/M
- ▲ Can print any LocoScript text formatting commands
- ▲ Can automatically rejustify paragraphs after insertion
- ▲ Can insert numeric calculations into letters
- ▲ Can read data from non-LocoScript (ie. ASCII) files
- ▲ Large manual, with example files on disc
- ▲ Powerful selection procedures - like a database
- ▼ Need separate program to sort and filter addresses before a print run

PROSPELL

£29.95 • Arnor • 0733 68909

A stand-alone spell checker for use with almost any wordprocessor that runs on the PCWs. Reads LocoScript, WordStar and ASCII files, and allows you to make corrections directly, view the context, change the dictionary etc. Specify which machine when buying.

PLUSES • MINUSES

- ▲ Checks LocoScript and WordStar documents directly.
- ▲ Displays the context of a suspect word
- ▲ Can edit misspellings directly from Prospell
- ▲ Anagram and crossword solvers too
- ▼ Processes files of 15K or more in sections

MINI OFFICE

£29.95 • Database • 0625 878888

The word processor module of this five-program package is very fast and powerful, with a word counter, but suffers from a mass of bugs in file saving and printing (and proportionally spaced justified print takes ages): doesn't yet rival LocoScript or Protext.

PLUSES • MINUSES

- ▲ Very fast and packed with features
- ▲ Unlimited headers and footers (eg. for footnotes)
- ▲ Can access printer directly (eg. for graphics)
- ▲ Screen can show exactly what will be printed out, italics, bold, pitch changes and all
- ▼ Currently riddled with bugs in printing, file handling, etc
- ▼ No phrases facility

POCKET WORDSTAR

£49.95 • MicroPro/Davis Rubin • 0386 853610

For many business users, word processing means Word Star. Almost everything you could need in a text processor is here and despite the title this "Pocket" version has all the features of the original. Efficient and proven, but now showing its age and there are alternatives unless you are committed to WordStar already. £20 extra buys the De Luxe version with spell checker.

PLUSES • MINUSES

- ▲ Probably the world's most widely used word-processor
- ▲ Documentation is complex but well-structured
- ▲ Includes a mail merge utility
- ▲ Keystroke commands fully described on on-screen menus
- ▼ Doesn't make full use of the PCW keyboard and printer
- ▼ Page and margin formatting commands awkward to use

NEWWORD

£69.00 • NewStar Software • 0277 220573

NewWord exploits the WordStar market by doing the same job better. It uses much the same key commands as WordStar and will even edit documents prepared under WordStar. Comes with a spelling checker, and the on-screen help is better than WordStar's, though the keystrokes are still as obscure.

PLUSES • MINUSES

- ▲ Does everything WordStar does, even reads WordStar files
- ▲ Spelling checker included
- ▲ Can un-erase words and lines
- ▲ Onscreen help better than WordStar's
- ▲ Full reformatting of text within mailmerger
- ▼ Weak on use of keypad and printer support
- ▼ Like WordStar, formatting troubles and obscure commands

LABEL PRINTER

£25.00 • Microdraw • 0622 685481

Very similar program to Easy Labeller if not quite as powerful. Usual features of a labeller and you can store comments with each label's data.

PLUSES • MINUSES

- ▲ Menus simple - easy to get the program going
- ▲ Fast data entry
- ▲ Can store comments with each entry
- ▼ No import or export of data
- ▼ Data needs an entire disc to itself

TEMFDISC

£11.95 • Thurston Techniques • 0395 277496

A set of ready made TEMPLATE STDs made up of fancy patterns of exotic characters for you to embellish and use with LocoScript. Essentially for social/personal business use. You could win £10 from the suppliers by designing your own!

PLUSES • MINUSES

- ▲ Using it tells you a lot about the intricacies of LocoScript
- ▲ You can get professional results easily
- ▼ You could write your own templates for free by reading the LocoScript manual

• ACCOUNTS • PAYROLL •

MONEY MANAGER PLUS

£39.95 • Connect Systems Ltd • 01 743 9792

The souped-up version of the personal accounts package Money Manager which would serve a small business quite nicely. It acts as a daily diary, over 12 months, recording all incomings and outgoings between up to 9 accounts. Similar transactions can be grouped together, and simple reports can be printed. Money Manager also available for £24.95

PLUSES • MINUSES

- ▲ Simple to use, need no accounts or computer knowledge
- ▲ Standing orders can be defined for each month
- ▲ Detailed and summary statements can be printed out
- ▲ VAT reports can be separated out
- ▲ Can present results as bar charts
- ▼ No audit trail integrity
- ▼ The statement format is not very flexible
- ▼ Transfers between accounts are not cross-referenced

VITAL PROCESSOR SERIES

£29.90 each • Vital Software • 0732 810330

Series of three programs designed to help you look after your money and your assets. The Savings Processor is ideal for someone with a portfolio of stocks and shares; it tells you your 'net worth' like a balance sheet. The Insurance Processor helps you make an inventory of all your possessions and put a value on them, while the Income Processor helps you keep tabs on your incomings and outgoings.

PLUSES • MINUSES

- ▲ Income Processor allows you to budget efficiently
- ▲ Insurance Processor can complete inventories room by room
- ▲ Savings Processor is a fast and efficient way of keeping track of share values
- ▼ You have to be keen to do all the research
- ▼ It can be time-consuming
- ▼ With the Income Processor, it's difficult getting all the information you need from the manual
- ▼ It's not always clear how some of the operations work

CHECK ACCOUNTS PROGRAM

£9.95 • M E Hodges • 03722 75053

A much more detailed accounts package, which allows you to make forecasts and keep track of the interest charged on your personal finances. Simple to use and the program also allows you to jump to any time in order to work out any interest accumulated in the meantime.

PLUSES • MINUSES

- ▲ Easy to learn from demonstration files supplied
- ▲ Interesting use of time scales
- ▼ Relatively slow screen update
- ▼ Only useful for the really organized

DIGITAL BUSINESS CONTROLLER

£69.95 • Digita International • 0395 45059

Not a full accounting system, but a very easy-to-use package with an excellent manual. Nominal ledger already set up and you can be up and running in minutes. No aged creditor/debtor lists can be produced, and problems with VAT handling - not really for VAT businesses. For other small business it's very

good value.
PLUSES • MINUSES

- ▲ Delight to use with a very good manual
- ▲ You can get the system working in minutes
- ▲ Financial ratios can be included in reports
- ▼ VAT handling very cumbersome, suit non-VAT business
- ▼ No facility for producing aged debtors/creditors list

BOOK-KEEPING AND ACCOUNTS

£57.50 (£80.50 with stock control) • Manx Tapes • 0624 813071

Supplied with a very useful introductory demonstration disc, the program advocates a very traditional style of double-entry book-keeping. Program has high degree of flexibility.

PLUSES • MINUSES

- ▲ Solid, traditional approach to double-entry book-keeping
- ▼ Program doesn't make full use of the PCW
- ▼ Screen prompts not always that helpful
- ▼ Written in BASIC, so prone to sluggishness

COMPACT ACCOUNTS

£199.99 • Compact Software Ltd • 0703 611214

Another very large integrated package supplied on several discs and consisting of sales, purchase and nominal ledger together with invoicing. The package is available on much larger micros, and since the format in which data is produced is the same as on PCWs, the system is particularly suitable for users planning to upgrade their hardware at a later date.

PLUSES • MINUSES

- ▲ Audit trails are an auditor's dream
- ▲ Data can be used in WordStar, Multiplan or SuperCalc 2
- ▲ Superb preparation facility
- ▲ Can run a number of companies separately
- ▲ Easily transported to bigger computers
- ▼ Lots of disc swapping necessary
- ▼ Can be slow to use - it runs in Mallard Basic
- ▼ Quirks in cash allocation routine and account code system

ANAGRAM ACCOUNTS

£86.25 • Anagram Systems • 0403 59551

Sophisticated package for users familiar with accounts. Small details (discounts, VAT) handled well but no permanent records are kept on disc; you must use its report printing options.

PLUSES • MINUSES

- ▲ Invoice printing is easy
- ▲ Handles customer details efficiently
- ▼ Key presses are rather obscure
- ▼ Best to have some idea of accounts before using it

M.A.P. ACCOUNTS

£149.95 • MAP Systems • 061 624 5662/3

This is a very powerful package moved onto the PCW at a fraction of its cost on larger micros. The size makes it a little cumbersome to use, but apart from that there are very few significant problems. The integrated suite includes the same five modules as Camsoft, but they are supplied on four sides of disc, making it effectively impossible for the software to be run as an integrated system on an unexpanded 8256.

PLUSES • MINUSES

- ▲ A very comprehensive and professional package

SPECIAL OFFERS 8000 PLUS

STOP PRESS

Only £74.99 (RRP £89.99)

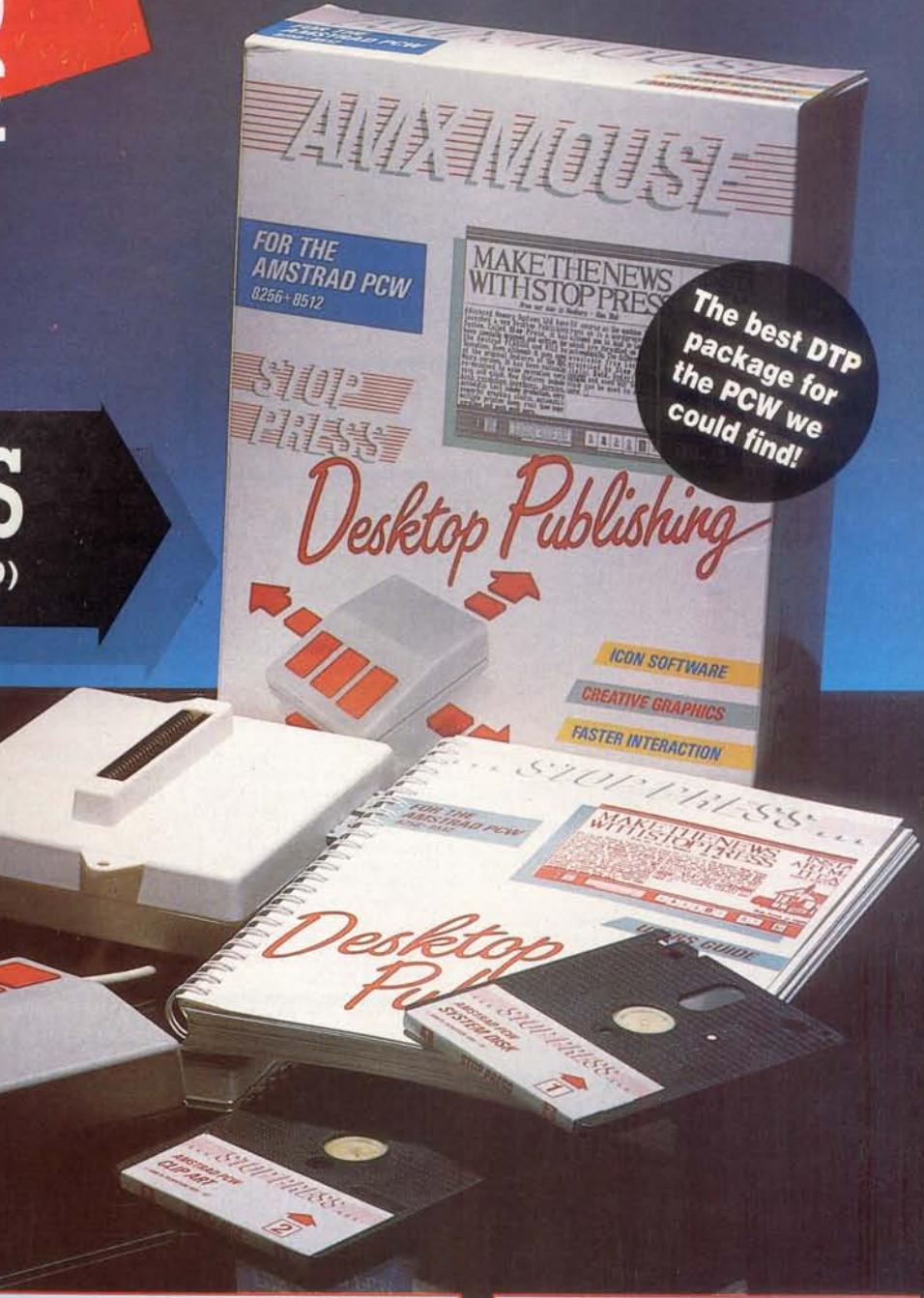
There are sensible fonts
AND THERE ARE EXOTIC FONTS
And of course the statutory Old English font
So Whatever You Want You Will Find
One to Suit -
And fit doesn't quite fit caught up at
Or else **Stretch it to fit**

▲ 'Just some of the fonts available on AMS' Stop Press'

Desktop publishing – doing page makeup on your computer instead of the old cut-and-paste method – is the boom area of home computing. All the national dailies are switching over to DTP methods – and so are thousands of PCW owners, to produce newsletters and flyers.

Want to try your hand? The best developed DTP package for the Amstrad PCW range is now available from Future Publishing at an all-in price of £74.99. Stop Press's incredibly versatile and powerful software plus mouse will turn your PCW into a DTP machine.

The Swiss-made mouse is probably the best currently available and offers high resolution movement all over the screen. The software makes the best possible use of this sensitivity, featuring as it does a wide range of DTP facilities which would probably cost three times as much on higher-priced computers.



The best DTP package for the PCW we could find!

- Just a few of the features are: -
- **14 different fonts supplied**
- Type sizes from **9 to 96 points**
- **Clip art** ready made to insert into files
- Text entered **directly or imported** from word processor
- On-screen text formatting, including **autoflow** around a picture
- **Draw, spray or paint** - your own designs or those supplied
- Up to **nine columns** per page!
- Bold, italics, underline, reversed boxes
- Centering, ragged right and literal justification
- Prints up to **108 pages** in one go
- **Shape drawing** includes triangles, squares, cubes, circles and ellipses
- Compatible with **digitised pictures** from MasterScan, Electric Studio and the Rombo digitiser
- **9512 compatible** using an Epson compatible dot matrix printer

Altogether, this is a superb way of getting to grips with DTP. We don't expect to offer any other DTP package through these pages again, because we've held back until we were absolutely sure that this was the best deal. So here's your chance to get going.

Save £15 on the manufacturer's recommended retail price by placing an order with our mail order department (telephone 0458 74011).

Newsletters, fanzines, posters, letter heads, leaflets, charts, graphic business reports, flyers... all are now within reach, allowing your imagination as much freedom as possible. And with Stop Press there's no better way into the world of DTP.

Order Code 8023

THE GOOD SOFTWARE FILE

ACCOUNTS/PAYROLL • UTILITIES

- ▲ Very good audit trails
- ▲ Sales/purchase ledgers can run over different periods
- ▲ Facility for handling prepayments and accruals
- ▲ Able to print full management accounts
- ▼ The size of the programs means lots of disc swapping
- ▼ All normal responses need to be in upper case

CORNIX SIMPLE ACCOUNTS

£49.95 • Cornix • 0462 682989

Simple cash-book style package which allows you to keep track of debtors and creditors (though not aged ones). Simple to use and you can make changes if you make a mistake. Slow to use for complex operations and number of entries in given period is limited, but very good simple program for small businesses.

PLUSES • MINUSES

- ▲ Simple, easy-to-use program
- ▲ Can correct errors
- ▲ Keeps track of debtors and creditors
- ▼ Slow for complex operations
- ▼ Ability to alter figures won't please accounting purists

CAMSOFT PSIL

£149.95 • Cambrian Software • 0766 831878

Consists of five integrated packages: Sales, purchase and nominal ledgers, invoicing and stock control. In terms of sophistication it falls somewhere between the Sagesoft package and the larger systems from MAP and Compact. But it's easier to run than the larger packages since all the software can be squeezed into the M drive. Good package for a small company.

PLUSES • MINUSES

- ▲ Already set up for 8256 or 8512
- ▲ No need for pre printed stationery
- ▲ Excellent sort and search facilities
- ▲ Invoices shown on screen as you create them
- ▼ Constant need to input full five-digit account codes
- ▼ No final accounts reports available on nominal ledger
- ▼ No facility to run the ledgers in different accounting periods

CAVALIER INSTALL

£99.95 • Load & Run • 01-639 6683

A comprehensive integrated package. Comprises 'Intact' accounts and 'Instock' stock control, available separately for £59.95 each. Well designed, easy to run and powerful enough for most businesses.

PLUSES • MINUSES

- ▲ Other packages (eg: 'Teleadd' address book) can be added
- ▲ Comprehensive range of features when used as a package
- ▲ Sophisticated pricing and order features in Instock section
- ▲ Flexible accounts, traps most mistakes, useful summaries
- ▲ Interesting forward planning facility in stock control
- ▼ Manual gives you a confusing number of options

SMALL BUSINESS ACCOUNTS

£69.95 • NewStar • 0277 220573

Using the split-screen method, the prompt-driven program leads you through the hazards of double-entry book-keeping as painlessly as possible. Again, very useful demonstration files supplied with the program. It also handles VAT easily.

PLUSES • MINUSES

- ▲ Excellent system of screen prompts
- ▲ Good demonstration files
- ▲ One of the easiest double-entry systems for the novice
- ▼ Manual is really for the PC

SAGE ACCOUNTS

£100.05 • Sagesoft • 091 284 7077

An integrated accounts package consisting of purchase, sales and nominal ledgers. For another £50 you can buy Accounts Plus which also has invoicing and stock control. Aimed at small companies with the emphasis on ease of setting up. But a number of limitations, eg. the package cannot cope too easily with rapidly increasing numbers of customers and suppliers.

PLUSES • MINUSES

- ▲ Clean, tidy and logical screen layouts and menus
- ▲ Easy to set up and use with excellent documentation
- ▲ Good audit trails and VAT reports
- ▲ Can produce formatted trial balances
- ▼ Restrictive account numbering system
- ▼ Only single Nominal ledger and VAT analysis per item

- ▼ Does not cater for settlement discounts
- ▼ Won't print remittance advice slips
- ▼ Cramped on 9512 printer - need 17 pitch daisywheel

MAP PAYROLL

£49.00 • MAP Systems • 061 624 5662

PLUSES • MINUSES

- ▲ Can amend and re-run at any stage (even after printing)
- ▲ Cash analysis is broken down into departments
- ▲ System prevents re-use or amendment of leavers
- ▲ Can hold up to 40 standard hourly and weekly wage rates
- ▼ No SSP calculation facility (but can record all amounts paid)
- ▼ Programs necessitate a lot of disc swapping
- ▼ No printed record of automatic tax code changes

SAGESOFT POPULAR PAYROLL

£69.95 • Sagesoft • 091 284 7077

PLUSES • MINUSES

- ▲ Any or all employees payroll can be rerun at any stage
- ▲ Full pay history available for all employees and leavers
- ▲ Calculates average pay for holidays etc
- ▲ Very easy to install
- ▼ Limited number of additions/deductions
- ▼ Doesn't print a list of cheques
- ▼ No analysis of additions/deductions

COMPACT PAYROLL

£99.95 • Compact Software Ltd • 0306 887373

PLUSES • MINUSES

- ▲ Supplied with test data
- ▲ Facility to change employees tax codes following budget
- ▲ Can run payroll for several companies
- ▲ Program available for PC compatibles - data transportable
- ▼ Must be run from the master discs
- ▼ Needs input form and check calculation for each employee
- ▼ Once payslips are printed nothing can be changed
- ▼ Most expensive payroll program

CAMSOFT PAYROLL

£49.95 • Cambrian Software • 0766 831878

PLUSES • MINUSES

- ▲ Full payslip displayed on screen, any item can be amended
- ▲ Facility for freehand narrative on any payslip
- ▲ Uses M drive for programs to speed operation
- ▲ Built in on-screen help facility
- ▲ Search-sort routine for output to screen, printer or disc
- ▲ Uses alphanumeric employee codes
- ▼ Screen menus a bit untidy and sometimes difficult to follow
- ▼ No listing of cheques

• UTILITIES •

BRAINSTORM

£29.99 • Brainstorm Software Ltd • 0895 677845

A new improved version, reconfigured for easier use on the PCW. Works as an 'ideas processor'; you throw your ideas in any order and then use the program to rearrange them and impose a structure.

PLUSES • MINUSES

- ▲ Quick and efficient and easy to use
- ▲ Encourages structured thinking
- ▲ Versatile; many different editing facilities
- ▲ Results can be fed into a word processor for polishing up
- ▼ Namesakes must be exact matches
- ▼ Manual is on disc, so you can't consult while using BrainStorm unless you print it out

PRO-PERFORMER

£59.95 • Electromusic Research • 0702 335747

The only real musical add-on for the PCW. Easy to use software runs on CP/M, has a wide variety of powerful features and is icon-driven. Sophisticated recording facilities and the program will allow you to save compositions as tracks, songs or performances. Ideal for pop and classical musicians.

PLUSES • MINUSES

- ▲ Icon-based screen
- ▲ Can record lines independently or in an arrangement
- ▲ Punch-in editing facilities
- ▲ Facility for slow recording and fast playback
- ▲ Step-time recording for strict in tempo lines
- ▲ Tracks can be looped (made to repeat)
- ▼ Manual glosses over arrangements
- ▼ Can't edit notes individually
- ▼ No musical notation anywhere

JOB ESTIMATING & PRODUCT COSTING

£79.90 each • Cornix Software • 0462 682989

Both programs aim to provide help to small businesses by keeping track of costs. You break down the product you're costing or the job you're doing into a series of costing lines - recording quantity and price per component. Program analyses profit margins and can produce customer printouts.

PLUSES • MINUSES

- ▲ Excellent-written manuals
- ▲ Simple and robust to use
- ▲ Changes in material costs instantly reflected in all quotes
- ▲ Neat way of doing on-the-spot quotes
- ▼ Only suitable for small to medium-sized businesses
- ▼ Can't add new components to a description

DATAFAX

Basic Version £39.95 (with Microfile £49.95 with mouse £79.95 • Kempston Data • 0908 677886

Used in conjunction with a personal ring-binder, it helps you keep track of appointments, names, addresses etc. Also prints out data in a form that will fit the average personal organiser.

PLUSES • MINUSES

- ▲ Easy to use
- ▲ Flexible to allow you to do what you want
- ▲ Generates diary pages - saves buying inserts
- ▲ Very useful for name and address organization
- ▼ Preparing the data needed can be very time-consuming
- ▼ Keeping everything up to date is tedious
- ▼ No particularly sophisticated features

PS-HEADINGS

£11.95 • ORB Systems (01 690 8534) • 8000s only

Software addition to Arbor's Protext word processor. For the first time, you can create headings in Protext documents without having to use a DTP program. Three fonts are available and two print modes.

PLUSES • MINUSES

- ▲ Fonts on offer are functional
- ▲ Printed output looks good
- ▲ Easy to use
- ▲ 13 variables available, like underlining, reverse printout etc
- ▼ Main font variation is one of size rather than style
- ▼ Not so easy centring following text

LOCOFONT I

£19.95 • Locomotive Software (0306 740606) • 8000s only

A selection of new fonts to help you break out of the standard LocoScript typeface. There's a very good selection of styles to choose from: 'handwritten' styles look very good as do the Copperplate and Script styles. The Roman and Standard fonts are more practical. The new characters are reproduced very well indeed. A further six fonts are available, including Old English and flowing script, on LocoFont II for £14.95.

PLUSES • MINUSES

- ▲ Eight new fonts, one coming for free
- ▲ Each style supports all accents, characters, etc.
- ▲ Relatively cheap and easy to use
- ▲ Can break out of that one-pattern printout.
- ▼ Can't mix styles in one document
- ▼ Limitations of a 16 dot pattern means that the quality cannot be brilliant

DISC MATE

£24.99 • Siren Software • 061 848 9233

Disc Mate is a set of CP/M utility programs which bring complex disc recovery operations within the scope of CP/M novices. Facilities include recovering erased files and making files 'read only' (ie, unerasable).

PLUSES - MINUSES

- ▲ Simple on-screen instructions once you've got started
- ▲ Allows easy recovery of accidentally erased files
- ▲ 'ZIPDISC' program speeds up disc access by 10 to 20%
- ▲ Friendly file copying program in case you dislike PIP
- ▲ Can read both single and double density discs
- ▼ You'll need to understand CP/M basics

TAS-SIGN

£29.95 • Tasman Software • 0532 438301

Takes time to print out but you can print signs of up to five lines of text up to seven inches high with up to 32 characters in each. Four fonts, eight hatching patterns, and you can print lengthways on continuous paper for long signs.

PLUSES - MINUSES

- ▲ Wide range of fonts and shadings
- ▲ Long signs will print out in 'landscape' (sideways) format
- ▼ Long signs take time
- ▼ Some symbols (yen signs etc) won't print out on PCW

MOUSE & DESKTOP

£79.95 • AMS • 0925 413501

A whole new way of using your PCW - banish CP/M for ever. For your money you get a mouse and software which emulates the GEM desktop environment found on PCs. All commands are given by pointing to icons on the screen, not typing at the keyboard. You also get calculator/calculator (etc) utilities

PLUSES - MINUSES

- ▲ A genuinely useful desktop organiser, with useful utilities
- ▲ Well presented and easy to use
- ▲ Makes CP/M commands easy
- ▲ The mouse can be used with a variety of other software
- ▼ Takes up a lot of space in the M drive
- ▼ Utilities not available while running other programs
- ▼ Can be irritating if you are proficient with CP/M

PERSONAL TAX PLANNER

£25.95 • Digma International • 03954 5059

Simple program which asks you all the questions relevant to your year's tax affairs, and prepares your tax return claim (or bill!) Can, for example, find out whether married couples would be better assessed separately or not. Annual updates available.

PLUSES - MINUSES

- ▲ Simple to use
- ▲ Needs a minimum knowledge of the tax law
- ▲ Forces you to keep your tax details in one place
- ▼ Limited application - might only use it once a year
- ▼ Can't handle unusual cases
- ▼ Program updates (for a new allowance level) cost £10

KNIFE PLUS

£19.95 • Hisoft • 0525 718181

An essential tool for retrieving data from corrupted discs. Knife Plus will copy all uncorrupted sectors on to a fresh disc which you can then patch up without risking the original.

PLUSES - MINUSES

- ▲ Copies all uncorrupted data from damaged discs
- ▲ If boot sector damaged, will copy good boot sector onto disc
- ▼ Requires some knowledge of basic disc structure
- ▼ Manual not written for beginners

WISE ONE

£34.95 • Swallowsoft • see below

An expert system - you input rules and information and Wise One becomes an 'intelligent' program which can, for example, do simple diagnoses according to symptoms you type in. From PO Box 107, Walton on Thames, Surrey KT12 5PQ.

PLUSES - MINUSES

- ▲ Power to be genuinely useful
- ▲ Elementary arithmetic
- ▲ Help screens can be set up for the user
- ▼ Obscure way of writing rules - need programming instinct
- ▼ Manual dry and academic

FLIPPER

£24.95 • Software Imperatives (0453 886931) • 9512/8512

This program allows you for the first time to flip between CP/M and LocoScript II without resetting the machine. Ideal for easy import/export of data.

PLUSES - MINUSES

- ▲ Quick, simple and easy to use
- ▲ You flip back to where you left off in the other environment
- ▲ Works with most CP/M programs and BASIC
- ▲ Works with all variants of LocoScript 2
- ▼ Won't work with games that ignore SHIFT EXTRA EXIT
- ▼ Won't work with LocoScript 1 or Mini Office
- ▼ Be careful of hardware when flipping; state of printer or disc drive for example

Useful

SUPER TYPE II

£1495 • Digma International • 03954 5059

A program for users of LocoScript (1 or 2) and CP/M programs, which modifies the fonts (ie, the look of the characters) used by the PCW printer. SuperType has 4 'business' fonts and 4 'novelty' fonts, like Olde English. It works by directly altering the

relevant files for LocoScript or CP/M, so you only need run it once - after that, the new chosen font is automatically available.

PLUSES - MINUSES

- ▲ Once installed, you can totally forget it's there
- ▲ Genuinely useful range of fonts available
- ▲ Works with LocoScript as well as CP/M
- ▲ All LocoScript's print size and style options still work
- ▲ Doesn't take up any extra disc space
- ▼ You can't mix different fonts in the same document

LOCOKEY

£14.95 • Locomotive Software • 0306 740606

This successor to LocoChar is a keyboard customiser which means that any key can be made to produce any letter. At the touch of one button, the program will reproduce any one of the sixteen LocoChar-defined characters.

PLUSES - MINUSES

- ▲ Enables customisation to any distribution of keyboard letters (ie, non-QWERTY keyboards)
- ▲ Handles any combinations of accent and character
- ▲ Works with LocoChar defined characters
- ▼ Will only be of limited use

• DESK TOP PUBLISHING •

Desktop publishing - or DTP - packages enable you to produce your own newsletters using your PCW. They come with a variety of fonts of a range of sizes for headlines and body text and a selection of graphics to include in your creations. You read in your articles prepared by a word processor into text boxes. If you can't edit the text from within the program, you have to go back to your word processor to fine-tune the article to fit - this is very tedious. Then you put your graphics in graphics boxes, make up your headlines, and then lay out your publication on the PCW by juggling the position of your boxes on each page. Finally you can get a copy of each page on your printer (though not if it's a daisywheel, of course, as on the 9512) and photocopy the results.

The results won't be of sufficient quality to compete with the professionals, but for club and company newsletters, leaflets, posters and small publications, DTP could be invaluable.

- ▲ Good quality print in headlines and large fonts
- ▲ Can use font editor to create your own high quality fonts
- ▼ Text handling slow and cumbersome
- ▼ Not easy to undo mistakes

STOP PRESS

£49.95 • AMS • 0925 413501

An excellent DTP package, very strong on graphics, very well designed, and once you get used to it, easy to use. Sophisticated text handling features such as autoflow, but can't edit text - that has to be done in your word processor before flowing the text in. A lot of good fonts supplied too.

PLUSES - MINUSES

- ▲ Excellent graphics facilities, good as any graphics program
- ▲ Wide range of text styles
- ▲ Menu and key commands system suits beginner and expert
- ▲ Text autoflow
- ▼ No text editing ability
- ▼ Some quirks in text handling - apostrophes, spacing, etc.

THE DESKTOP PUBLISHER

£29.95 • Database Software • 0625 878888

Tremendous value for money. Graphics and text boxes can be easily moved around and page layout is clear. You can edit text from within the program, using LocoScript-like commands to set bold and italics. Good range of fonts and graphics too, at half price of its rivals! Mouse optional for £50 more.

PLUSES - MINUSES

- ▲ Text editor allows you to edit articles to fit the space easily
- ▲ Boxes and general layout easy to manipulate
- ▲ Works with three mice, but fine with keyboard alone
- ▲ Half the price of other packages
- ▲ Good range of fonts and graphics, and can design your own
- ▼ Can't fix size of text boxes - they expand to take all the text
- ▼ Headlines can look a bit jagged

NEXT MONTH

The guide continues with DATABASES, COMMUNICATIONS, EDUCATIONAL PACKAGES and PROGRAMMING. After that it's SPREADSHEETS, GRAPHICS and GAMES and the month after that it's back to this month's categories.

Our intention is to keep publishing the three parts of the guide in rotation, updating it each month to include all new products. If you would like to see other sections of the guide, back issues of 8000 Plus are available from our Somerton address at £1.75 each.

Meanwhile, if you are aware of any significant errors or omissions in the files as published, please let us know. We want to maintain it as THE authoritative guide to PCW software.

NEWSDESK INTERNATIONAL

£49.95 • The Electric Studio • 0462 420222

Versatile package with a very wide range of graphics facilities and high quality headline text. Page make-up is flexible, though the program can be a bit cumbersome, mainly in text handling. Same graphics facilities as Electric Studio's 'Art' package.

PLUSES - MINUSES

- ▲ Good control over the elements on the page
- ▲ Powerful graphics facilities

ORDER FORM No. 29

HOW TO ORDER

Just list the items you require in the Order Form below or ring our 24-hour hotline on (0458) 74011 and ask for Credit Card Orders. All goods are sent by first class post, normally within five days of order. But please allow 28 days in case of temporary shortage.

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The first issue of a new subscription will be one or two issues away from the one current when you place your Subscription Order.

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SPEC

BACK ISSUES

We have limited quantities of the back issues listed below. The prices include a nominal 25p postage. All issues contain excellent TipOff sections and a selection of BASIC listings, plus the other regulars. Don't miss the chance to expand your collection!

Issues 1-6 SOLD OUT

Issue 7 £1.50 Spreadsheets special. LocoScript troubleshooting. Reviews of Cavalier accounts, Personal Tax Planner, Stockmarket packages, Adrian Mole. **Order code 8015**

Issues 8, 9 & 10 SOLD OUT!

Issue 11 £1.75 How to recover lost disc data. Installing a second drive. The SUBMIT command. Reviews of Desktop Publisher, Red Boxes, Leaderboard. **Order code 8019**

Issue 12 SOLD OUT!

Issue 13 £1.75 Linking to portables. PIP revealed. Genealogy software. Protext tips. Datastore. Fleet St. fonts. **Order code 8021**

Issue 14 £1.75 Full review of the PCW 9512. Connecting to a synthesizer. LocoScript 2 wallchart. Reviews of Poolwinner, low-cost business software, battery backups. **Order code 8022**

Issues 15, 16 & 17 SOLD OUT!

Issue 18 £1.75 LocoScript vs. Protext, Hard discs, CP/M for hackers, AtLast Plus review. **Order code 8026**

Issue 19 £1.75 Special Comms issue, CP/M Wallchart: Wordstar 4, Lightning Basic. **Order code 80019**

Issue 20 £1.75 Computer filofaxes Mini Office tutorial Add your own 2nd drive Cracker Turbospreadsheet **Order Code 80020**

Issues 21, 22 & 23 SOLD OUT - SORRY!

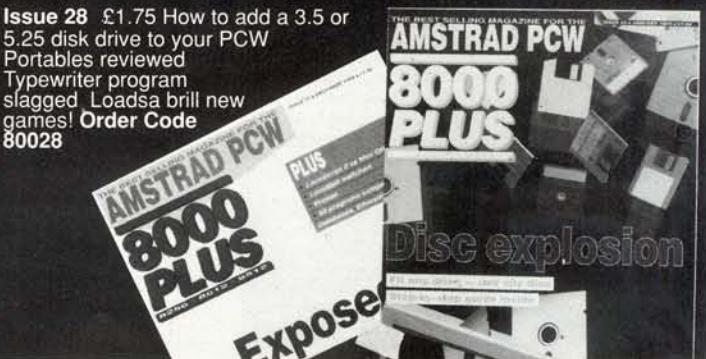
Issue 24 £1.75 9512 Special Report Four-page features back issues index Astrology, cricket, database reviews DIY Graphics Mini Office book **Code 80024**

Issue 25 £1.75 Spreadsheet special Flipper review DIY share analysis Home banking Jeffrey Archer & his PCW's GSX graphics 2nd hand PCW Guide **Code 80025**

Issue 26 £1.75 LocoFile exclusive preview BASIC wallchart PCW portable preview Disc doctor LocoScript books Devpac 80 2 **Code 80026**

Issue 27 £1.75 Locomail wallchart Prestel Assembler DIY software Loco 2 vs Mini Office **Order Code 80027**

Issue 28 £1.75 How to add a 3.5 or 5.25 disk drive to your PCW Portables reviewed Typewriter program slagged Loads a brill new games! **Order Code 80028**



ALL OFFERS

THE 8000 PLUS SPECIAL OFFERS SECTION

Welcome

to 8000 Plus Special Offers section. As ever, our intention is to bring you the best selected products in the marketplace - products which for various reasons are often hard to obtain in the shops. Rest assured, however, that to qualify for the Special Offers section the product has to have been successfully reviewed in the magazine. In some cases, such as DTP and LocoScript books, we have chosen from a plethora of titles the one which we believe offers the best features and represents the best value for money.

Scan these pages at your leisure. Not only are many of the items hard to obtain, but we usually manage to offer you them at less than the full recommended retail price and we carry stocks. If you call (0458) 74011 or fill in the Order Form on the left hand page, you'll usually get your goods within three working days of ordering (although some items - highlighter pens! - do run out of stock and can be hard to obtain so please allow 28 days for delivery in such cases).

If you have any queries contact Christine Stacey or Sarah Richards on (0458) 74011.

9512 software:
The following titles do not run on the 9512:
Distractions;
Catch 23

TOMAHAWK

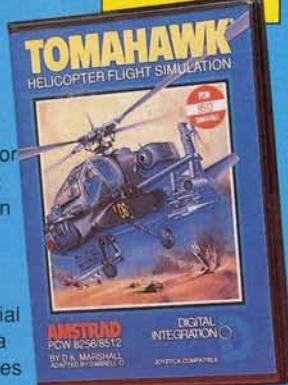
**Only £14.95
(RRP £19.95)**

This 9512-compatible helicopter simulator is just the best! Quite apart from the fact that it's the only one, Tomahawk has won heaps of praise as being a superb real-time simulator based on the Apache helicopter.

Full instrument panel includes artificial horizon, Doppler navigation, VDU, with a map. A full range of flying options includes backwards and sideways flight, aerobatics, take-off and landing procedures and torque turns. Four skill levels plus day/night, clear/cloudy and wind options are available. Four mission types are included. Plus three weapons (gun, rocket and missiles) and enemy guns, tanks and helicopters to take out.

A huge program in every way!

Order Code 8049



CATCH 23

Just £14.95 (RRP £19.95)

'A good deal of thought and planning has gone into this game and it shows', was what our reviewer said of this 3D wire graphic arcade strategy game in issue 25 of 8000 Plus. Martech's first PCW game is something of a quiet triumph for intelligent gameplay interspersed with furious action requiring lightning-fast reactions at key points.

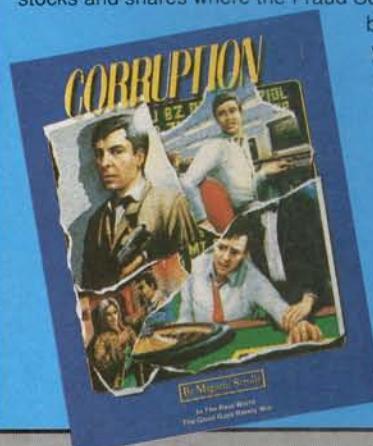
The basic aim is to enter a military complex and get out with a laser system blueprint. You have 14 sectors to explore, and weapons include detonators, bombs and timers. The vector graphics - *a la* Starglider - involve you in a thoughtful game which offers the best PCW entertainment for many a long winters night.

Order Code 8043

CORRUPTION

Just £19.95 (RRP £24.95)

What a conversion! The super squalor-in-high-finance game really gets your brain burning - enough to win 18 out of a possible 20 points when tested in 8000 Plus (issue 28). Published by Rainbird, written by Magnetic Scrolls, Corruption is set in the world of stocks and shares where the Fraud Squad is always on your heels but you don't know why since you've only just been made a partner in the company...



PICK OF THE MONTH!

Superb graphics with text that is 'very well-written and irreverently comic in tone', Corruption is one of the most best-developed games yet to appear on the PCW and sets a standard that all other publishers should attempt to follow in 1989. Excellent!

Order Code 8050

DISTRACTIONS

Just £9.95 (RRP £19.95)

Wow! Three games on this compilation written by Design Design and featuring three great program ideas. NEXOR is a superior 3D isometric graphics strategy game, 2112 AD an icon-driven arcade adventure and On The Run is a super-fast all-action maze game.

Altogether three intelligently-written graphic arcade games with a strong strategy element ensuring that they remain playable and interesting for more than the time it takes to master the initial 'shoot to kill' element. Which is why it's called Distractions!



DISTRACTIONS

LIVING DAYLIGHTS

Just £9.95 (RRP £14.95)

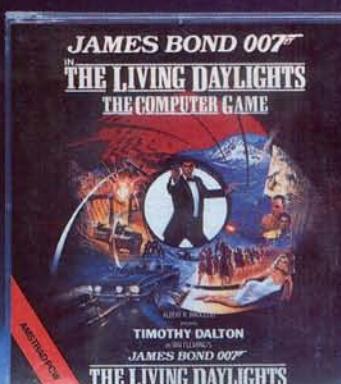
'A demanding game with plenty of action' was the verdict on the officially licenced computer game of the James Bond film starring Timothy Dalton.

The game, based on the film and the coin-op arcade game by Arcadia, features eight levels, each in a different location, in which your responses must be lightning-quick in order to survive.

Gameplay involves standard shoot-'em-up left/right/up/down/fire, with weapons including bazookas, grenades, missile-firing pens, crossbows and a ghetto blaster!

A game for those that like their games in the 'just one more go' adrenalin rush category!

Order Code 8046



SPECIAL

LOCOFILE

£29.95 plus Locoscript II wall chart and highlighter pens

'It's difficult to think of any LocoScripters who wouldn't find LocoFile useful', was Rob Ainsley's conclusion when he previewed Locomotive's new database in issue 26 of 8000 Plus.

The fact is, a database which can be accessed from inside LocoScript II and is fully compatible with LocoMail is a brilliantly logical idea. Locomotives usual panache comes to the fore in the feel of the program too. Essentially an easy to use card index, LocoFile features flexible indexing, fast lookup, efficient use of disk space and is suitable for any PCW (plus three hard disk drives).

Features include:

- Look up or change card details from within LocoScript
- CUT and PASTE to and from LocoScript
- Use up to eight indexes at once - alphabetic or numeric
- Cards up to 99 lines by 80 columns wide
- Up to 50 items per card
- Holds 1,000 names and addresses on a 706K disk
- No limit to number of entries on hard disk
- Add or delete fields, change card size at any stage
- Fully two-way compatible with Loco Mail

For all LocoScript 2 users who want an expandable suite of applications, Locomotive is providing the answer without ever having to boot up CP/M! LocoFile provides the classic easy-to-use environment familiar to LocoScript users and has all the hallmarks of a major software launch - Signs of relief all round!

Order Code 8044
(8256 version)
8048 (9512 version)

FREE!

With your copy of LocoFile

- Locoscript 2 full colour wall chart
- Set of three highlighter pens



MINI OFFICE PROFESSIONAL

Only £23.95 (RRP £29.95)

An incredible value-for-money integrated package combining database, spreadsheet, word processor, comms and graphics function, Mini Office combines features often not included in

software three times the price: sideways spreadsheets, full database sorting, Prestel compatibility and extremely fast word-processing including a word counter.

In one package, this does just about everything it's possible to do on a PCW - if you want to break free of LocoScript, this amazing value program is for you.

Order Code 8011



THE 8000 PLUS COLLECTION

1. 8000 plus disc labels Packet of 20 for £1

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Spare labels for your 3" discs in four different colours - yellow, green, red, blue.

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Protect your PCW with these specially-commissioned three-piece 8000 Plus covers.

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Store up to 12 issues for just £4.95

A superb gold-embossed green binder. Buy one and watch your collection grow into the definitive library of PCW info.

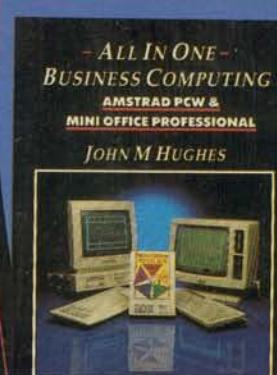
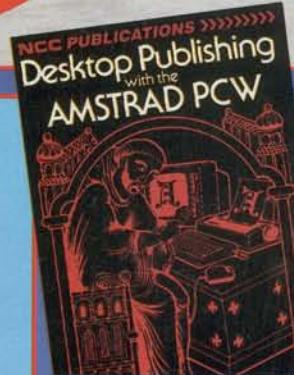
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Three for £1.50

For £1.50 you get green, red and yellow 8000 Plus-stamped pens in a clear plastic wallet.

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DESKTOP PUBLISHING WITH THE AMSTRAD PCW

Only £8.50!

Your PCW is a powerful desktop publishing tool - with it you can print everything from newsletters to posters. With the right software for your needs the options open up your computer as a handy way of earning your living. Mike Milan looks at all possibilities. He leaves the actual choice of software up to you, and discusses page layout, reproduction methods, printers, fonts, trim marks, photo layouts - all in a heartening prose.

Order Code 8035

OFFERS

CLOCK CHESS '89

Just £17.95 (RRP £19.95)

This latest update is really one of the most incredible chess programs on the market for any computer, as CP Software's fine-tuning enhances the 3D graphics, extends the openings library and cranks up the speed of response. Clock Chess '89 is invariably the winner in computer competitions - indeed UK Chess Champion Mike Basman calls it 'a lively and interesting



Clock Chess '89 vs.

Publisher	Hardware	Result
Clock Chess '88	CP Software	6-4
Cyrus 2 Chess	Amsoft	8-2
3D Clock Chess	CP Software	9-1
Superchess 3.5	CP Software	9-1
Colossus 4 Chess	CDS	9-1
Psi Chess	The Edge	10-0
Grandmaster	Audiogenic	10-0
Psi Chess	Psi	10-0
MasterChess	Amsoft	10-0
MasterChess	Microgen	10-0
Spectrum Chess	Artic	10-0
Chess - The Turk	OCP	10-0

opponent, an aggressive program that keeps you on your toes', then displays his own killer touch by adding: 'It dices up Colossus Chess nicely'.

Features of the game include:

- Recomends your next move
- Displays up to 62 moves to printer or screen
- Program v program option
- Timer forces move on either or both sides
- All rules understood including underpromotion, draw by repetition and by 50 rule move.
- Save/load a game to/from disk
- 44K openings memory - add your own opening moves!

Clock Chess '89 beat Clock Chess '88 6-4, so the differences are discernable and all add up to the most sophisticated 8-bit chess game yet built. It might be worth noting that CP claims that this version beat all other chess programs including the ones from Psi, CDS, Amsoft and OCP by an outrageous 10 games to nil (see box left). So after that there's only one way to find out!

We're delighted to be able to present Clock

Chess '89 so early in its career. We are confident that there's at least 12 months - if not a lifetime - left in it yet.

Order Code 8051



ALL IN ONE BUSINESS COMPUTING:

AMSTRAD PCW AND MINI OFFICE PROFESSIONAL £11.95 • Sigma Press

Mini Office is an integrated package, and Hughes shows more clearly than the manual how each module works together. Detailed explanations abound, with four chapters on word processing, three on comms, two on the database and spreadsheet and one on the graphics module.

With this book you may never need any other software for your PCW!

Order Code 8042

FREE!

20 3 inch disk labels in four colours are included free when you order the Mini Office book through these pages

"What mighty contests rise from trivial things."
ALEXANDER POPE

TRIVIAL PURSUIT

Just £14.95 (RRP £19.95)

The world's most popular board game has been revamped for the PCW. This Domark version features tunes (played backwards!) and graphics-based questions, as well as a new cartoon character in the form of TP who introduces the questions.

Over 3,000 questions are included. Many are new and ensure that this version contains an entirely novel flavour whilst maintaining the essential fun of the original. So now's your opportunity to try and answer the world's most intriguing questions! These include: Which members of the Royal Family can vote? Do frozen peas float? What is Desperate Dan's favourite food?

Here's your chance to have fun and learn something at the same time!

Order Code 8045

Trivial Pursuit

THE COMPUTER GAME

AMSTRAD PCW-GENUS® EDITION

LOCOSCRIPT 2 & AMSTRAD PCW'S

£11.95 • Locomotive Software

Whether you're an 8256 or 8512 user converting from LocoScript 1, or a brand new 9512 owner, this will tell you all you need to know. It covers the basics of layouts and tabs, LocoMail and LocoSpell, alternative printers and even gives you an introduction to the world of CP/M. If you find the Amstrad manual a bit daunting, then this is for you!

Order code 8036

FREE

Copy of LocoScript II wallchart included with this book

SPECIAL OFFERS

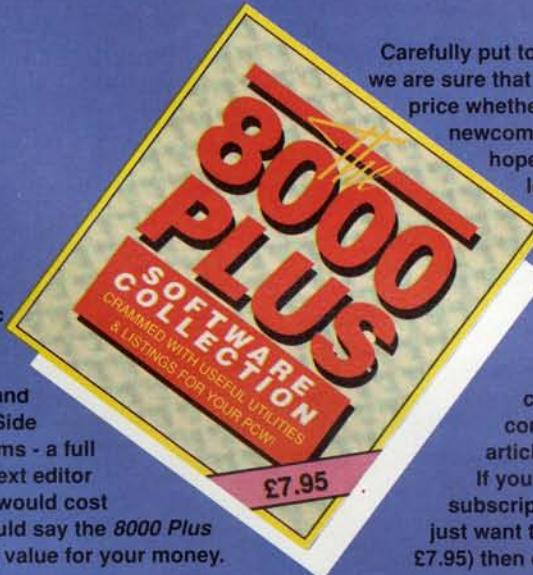
**Question:
How do you
add an extra
thousand bits
to your 8-bit
PCW?**

**Answer:
Subscribe to
8000 Plus
and you're
nearly there!**

THE 8000 PLUS SOFTWARE COLLECTION

Just £7.95

The first-ever 8000 Plus software production comes in a single 3 inch disc with includes more than 30 files of listings, Tip-Offs, examples for tutorials (eg Mini Office, spreadsheets) and jokes! And that's just on Side One! On Side Two there are two public domain programs - a full screen editor called New Sweep and a text editor titled VD02, both CP/M programs which would cost several pounds on their own. So you could say the 8000 Plus Software Collection offers rather a lot of value for your money.



There's no doubt about it. A full 12 issues of 8000 Plus AND a gift pack consisting of *The 8000 Plus Software Collection* (see box below), blank 3 inch disk with proper plastic case and pack of disk labels - all for £17.95 - is incredible value for money. Take out a year's subscription and you are assured of the latest information about what's happening in the PCW market, written in delightful prose by a team which enjoys what it's doing, with editorial covering the whole market from typewriters to programming. No wonder 8000 Plus has one of the highest percentages of postal subscribers of any magazine in the UK.

But it doesn't end there. As soon as you send in your completed Order Form we'll

immediately send you your free gift pack - a copy of the first-ever *8000 Plus Software Collection* (RRP £7.95), a blank CF2 disk in a hard plastic case (we had as much trouble as everyone else getting hold of them but we have them now!) worth £2.50 plus a packet of 8000 Plus disk labels. Which means a subscription where you get your magazine sent directly to your home address in advance of the street date, plus a gift pack worth over £11.

No other magazine would be so foolish! But at the end of the day, rest assured that you will be getting the best coverage of the PCW market you can find. No one does it better because no one cares as much!

Order Code 81100

THE 8000 PLUS GIFT PACK

- 1** The 8000 Plus Software Collection (RRP £7.95)
More than 30 crucial files for your PCW
- 2** A blank 3 inch disk (RRP £2.50)
Micro Interface disk made in Japan with a hard plastic cover
- 3** Set of disk labels (RRP £1.00)
Colour-coded 8000 Plus 3 inch disk labels

Carefully put together by the 8000 Plus editorial team, we are sure that you will find something to justify the price whether you are a regular reader or a newcomer to the PCW world. Of course, we hope that regular readers will find that many loose ends from articles over the past 12 months are now resolved with the programs here - especially items on Mini Office and other listings. Indeed we intend to continue publishing programs that round off instructional features, because there is that sense of completion which comes with using the computer medium whilst working with the article.

If you would like to order the program with a subscription, quote Order Code 81100. If you just want the program on its own (at a price of £7.95) then quote Order Code 81101.

The moving hand writes

As a new 8256 owner and 8000 Plus reader I don't know where to turn for advice on a problem which may be quite commonplace. The only remedy I have tried so far, without success, was to approach SEGAS. No! Novice I may be, but I do realise that my 8256 is not gas-powered.

Quite frequently when I am using the word processor, at moments when my hands are not even near the keyboard, a number of letters or symbols come up on the screen unsummoned. Alternatively, the thing beeps at me for no reason. Now this is where SEGAS comes in. This phenomenon occurs when the thermostatic control on the gas central heating switches off the heating and thus, of course, the pump. SEGAS admit they do occasionally hear of problems with interference on television from central heating pumps and their engineer came to check up.

Inevitably, I suppose, there was no way we could provoke this effect while he was here, however often we turned the heating up and down. In fact all he managed to achieve was a leak in the pipe leading from the cylinder.

The problem with the intrusive groups of letters has often happened since, as many as five times in one evening, and always as I heard the slight shudder of the pump switching off. The letters always include the sequence CX, typically:

DCXX
peep
2X
X
peep
CX

Would you suppose the position of the PCW would be likely to have any effect on this? I use it in the room immediately above the scullery where the gas boiler (with its electrical connection) is situated, and the cylinder and pump are in the airing cupboard immediately opposite my workroom.

I shall have to set up a standard phrase as a footnote saying 'Any errors in this are due to Gas Central Heating' but it would not be very convincing.

Diana Lines
Eastbourne, E Sussex

8000 PLUS Try buying a surge suppression plug (advertised in 8000 Plus). This may do the trick by protecting your PCW from surges in the supply. Or go over to a real coal fire.

POSTSCRIPT

An exposition of expertise, extravagance and exclamations exchanged by an exiting Ed.

Yes, it's x for exit as the current editor bows out. Cross about something? Want to make your mark? X marks the spot in PostScript, the liveliest letters page on matters PCW and not PCW for x miles. Send your contributions to PostScript, 4 Queen St, Bath BA1 1EJ. This month's subjects include waste paper, electronic smog, academic reports and illicit uses for LocoScript...

Though it's probably no consolation, we've started to have similar problems. Apparently for no reason, the three PCWs in the 8000 office all give a directory of their disc even though no-one is touching the keyboard. Having dismissed theories involving ghosts, bugs in Protect and teams of three invisible men (or women), and not having gas central heating, we come back to 'electronic smog'.

This phenomenon, noted by Japanese scientists but not yet given much attention, is sinister and growing. It's just the general wash of electromagnetism caused by all these electronic devices around having unintended effects. Car-welding robots in Japan have been recorded as inexplicably welding people instead of cars. After the greenhouse effect, depletion of the ozone layer and clearing of the rain forests, electronic smog is our tip for The Next Thing to Worry About in 1989.

Drive to despair

In his disc drives feature last month, Steve Patient asserts that to fit a 5½ inch disc drive to your 8512 'means giving up your existing second drive'. This is absolute nonsense.

KDS Electronics of Hunstanton are able to offer an external 5½ inch drive unit with independent power supply capable of being fitted in parallel with an existing B drive and an integral switch enabling selection at will between the two B drives.

The problem of software to

achieve actual data transfer proved even more problematic. After considerable research with various suppliers, I am currently using a program '2in1' (from Moonstone Computing of Glasgow, advertised in 8000 Plus) which offers a means of achieving a 'dual format' on a 5½ inch floppy, enabling the disc to be read both by a PCW operating under CP/M (in a suitable external drive, of course) and by a PC under MS-DOS.

Are there similar transfer systems which work with an external 3½ inch drive, now that this is clearly becoming the new industry standard drive?

DJ Perry
Reading, Berks

8000 PLUS Well, I don't think it was absolute rubbish - relative rubbish, perhaps. In principle you still have to give up your existing B drive, and what you mention is a particular solution. And as you say even daisy-chaining the extra drive means you can only use one or the other so you still have to give it up half the time. But thanks for the information!

Advantage assure us that HIHO, their disc transfer program, works with 3½ inch discs.

NZ ripoff

Time to write to someone about the great New Zealand ripoff. If you walked in off the street to buy an Amstrad PCW you'd die at the

price. The latest cost for the 9512 is NZ\$2995 - when converted back at the current rate of 35.21 pence you get £1054.

You might suspect that the rest of the range goes through the same price hike, but this isn't so (the 1640 HD ECD sells at £1379). Coupled with the high price we get no support, no software, nor anything else we customers deserve.

Perhaps you can find out at your end why the ripoff that only serves to give Amstrad the bad name it now has as the worst value for money in town.

Keith Whitehead
Palmerston, NZ

8000 PLUS Well, I doubt that anyone's making a fast buck on PCWs in New Zealand - computers generally seem to be very expensive there. I've met someone who came from there to England to buy a PC because it was cheaper to do that than buy it locally; he also got a free holiday. It would be glib to recommend that you do that but, short of going to Hong Kong which is nearer and much cheaper, I can't see what else to do.

Pros and .COMs

I would like to know how to make one of my BASIC programs into a COM file, but don't know how. Is this possible, and if so, how?

IJ Turley
Bath, Avon

Disabled software

I was interested in the article by Peter Bayliss last month. I work for the NHS as an Occupational Therapist, and have recently started work in a department where there is a very underused 8256. I have an 8512 at home which I use for study, household business and leisure.

In my training I had experience of using the BBC Master with adapted controls and software. The potential applications of the more affordable Amstrad in its unaltered or slightly adapted form with the mentally/physically ill or disabled only occurred to me when reading Peter's article.

I wonder if any other readers have experience or knowledge of the use of PCWs in these areas? I would be grateful for any information or ideas and can be contacted at the address below.

And by the way, in Hitch Hiker's, how can I leave Earth? I've been killed thirty times already!

Keith Wilshire
c/o Kenley Unit, Kingston Hospital, Wolverton Ave, Kingston-upon-Thames

8000 PLUS Lie under the bulldozer. Don't take the towel from Ford. Follow him up the lane to the pub. Drink the right amount of beer – the prompts should help you. When the Vogons come wait till you see the signalling device on the ground. Pick it up, examine it and press the appropriate buttons. When you're in the darkness of the ship afterwards, just follow your nose...

And make sure you've got that junk mail!



8000 PLUS Hmm – yes and no. Suppose you want to turn your program to teach English as Foreign Language called ENGLISH.BAS into a .COM file. The simplest thing is just to make sure BASIC.COM is on any disc that ENGLISH.BAS is, and run it straight from the A: prompt by typing BASIC ENGLISH. Programs exist to turn ENGLISH.BAS into a .COM file but this involves including all of BASIC.COM in as well so you wouldn't be able to sell or give this .COM file to others, as it would infringe copyright.

BASIC compilers exist in which your BASIC listing is turned into a .COM file, but the most popular of these, CBASIC, is very different from Mallard – the one you have – and any existing Mallard program would have to be rewritten significantly.

My favourite solution if you really want to make .COM files would be to learn Pascal, which is very similar to BASIC. HiSoft (0525 718181) do a very good Pascal compiler.

Code hard facts

I am simple. I must be. My wife tells me that I am simply intolerable. My daughters tell me that I am simply simple, and my birth certificate (apart from telling me that my parents were, in fact, married at the time of my birth as well as conception) simply tells the world that I am old and getting older.

From this particular vantage point in life not only do I throw apples at passing donkeys, but it idly occurs to me that each and every different programming language is, despite its wrappings, only a means of inserting machine

code into the working heart of the PCW beast (do I hear cries of 'philistine!' at this point – well no, as with age comes also deafness).

Given this rather simplistic understanding at what is no doubt a delicate interplay between things at a high or possibly higher level, then my small mind suggests that it may well be feasible to convert any programming language into machine code.

If so then it should be equally possible to convert machine code back into any programming language and thus provide a simple interplay between them all. I could take a simple program written in, say, BASIC or Pascal, turn it into machine code, and then convert it into any of the above or other languages I desired and, perchance, understood.

If I bought a program in C, say, I could see in, say BASIC, not only what happened to the chorus girl, but more importantly, I could see how to do it in BASIC myself given a similar situation (assuming the pacemaker and wooden leg could stand the strain).

WJ Jukes
Rugeley, Staffs

8000 PLUS Converting BASIC is a problem on its own (see the other letter in these pages). But with any compiled language, like Pascal, your listing is turned by the compiler into machine code.

Converting back from machine code into a Pascal listing, say, poses a lot of problems. Think of those multi-lingual instruction books you get for steam irons and things which have English, French, Finnish, Japanese etc. as well as a list of

pictures which apply to them all. The pictures are like the machine code result that everything reduces to, and the languages like the different computer languages, with their own grammars, vocabularies and syntaxes. In theory you can 'translate' the pictures back into any language, but ask ten people to do it and you'd get ten different results.

Just like being able to translate from English to Japanese and vice versa, translation between computer languages, even by a machine code stepping stone, would require a good deal of artificial intelligence interpretation unavailable at the moment. Context can subtly alter or even totally reverse apparent meanings. For example, where Americans might say 'take it easy' and Brits 'don't work too hard', the Japanese would say 'ganbatte kudasai', which means literally 'please work very hard'.

I prefer the British version myself.

Address unknown

Using a PCW with LocoScript, on changing discs and pressing [F7] I sometimes get the message 'Disc address mark missing' and the files will not list. Can you tell me if it is the discs which are faulty or the PCW, and is there anything I can do to access the useful data on these discs?

ME Jones
Walsall

8000 PLUS It's almost certainly the discs. It is possible to recover data from the discs yourself – often virtually all of it – using programs such as those reviewed in 'Quickies' this month. Otherwise have a look at the letter 'Damage appeal' in these pages.

Low life

I'm planning to move to the Netherlands next Spring, where the current is about 220 volts, not 240 as in the UK. Will my 8256 work there?

EJ Coles
Theale, Berks

8000 PLUS Yes, no problems. You only need transformers in places with 110 volt supplies like Japan and the US.

TEFL on

Do you happen to know of any software for the PCW 8256/8512 that I can use for Teaching English as Foreign Language?

Dr David Faber
Manchester

8000 PLUS Apart from the English programs mentioned in this month's main feature, we know of no programs specific to EFL.

Why not write your own? The PCW version of BASIC is dead easy to learn and would be particularly well suited to a text-crunching program such as you'd use in EFL. (Try the Mallard BASIC handbook advertised by Locomotive in this issue).

Waste lines

With reference to your December editorial, I share your concern about ecological awareness and the huge amount of waste paper generated by the computer industry. Recycled computer paper can be obtained from Greenpeace Merchandise, PO Box 10, Gateshead Tyne and Wear, NE8 1LL

Peter Bayliss
Street Ashton
Rugby



It's academic

Help! I have a 100,000 word academic report to prepare for commercial publication. I'm armed with an 8512 and LocoScript 2 and I begin full time work on this project in January. I want to do it the cheapest and most efficient way to commercial printing standards since I may have to foot the bill myself and I'm not sure how to go about it.

Commercial printers say: 'Don't use a PCW, use a PC, and if you must use a PCW don't use LocoScript since all your beautiful layouts, italics, etc will disappear in the ASCII file and will have to be put back in again on our PCs prior to printing.'

Is this true? Must I go for some other word processing package to avoid this problem? If I stick with LocoScript 2 do I have any alternative to the above? Would it make sense to produce the report in LocoScript on a high quality printer and make the plates for the pages for a print run of 500 or 1000 copies? Perhaps that might be too bulky or expensive, but if not, what printer and interface would do the job? You may have other solutions that I haven't heard of, and January draws near.

Liam Andrews
Belfast

8000 PLUS Producing camera ready copy with the PCW is by no means impossible – in fact I've seen quite a few short run academic books done on the supplied printer. For best results a 24 pin printer would be better. WordStar and Protext can drive an external printer via the Centronics interface and Locomotive have just made some 24 pin printer drivers available.

Some typesetters can produce camera ready copy from LocoScript files directly, as described in the 'Typesetting' feature this month.

A third possibility is to use a word processor available on both machines. These include Wordstar and the excellent Protext, the files can then be either ported across or the discs copied to the other format by a company such as Grey Matters (0364 53499).

LocoScript 2 remains peculiarly well suited to academic work with its mathematical and scientific symbols, foreign alphabets and accents, and so on.

Save it

Surely I'm not the only one who is put off buying games on the PCW because they often can't be saved to disc and continued later? The kid next door solved Head Over Heels in a day because he took all day over it.

I've got a wife to placate and a

Man's inhumanity to man

I still like your magazine, however, as a lifelong Mancunian and one who has been employed for many years in the city, I wish to write to protest at Steve Patient's article on the recent G-Mex Computer Show.

In the North we are sick and tired of ill informed Londoners criticising us, although we don't mind the truth about our faults.

There are signs to G-Mex, probably not enough of them. Manchester is not a remote place, we are better placed than most for access, but as for forty minutes from Piccadilly Station to G-Mex by bus and on foot, this is patently ridiculous.

An elderly lame ex-Rugby player carrying a measuring device could walk it from Piccadilly to G-Mex in twenty minutes, could Steve have taken a bus to Chorlton-cum-Hardy and walked it from there?

The rest of the article wasn't bad, and we look forward to seeing the exhibition again; perhaps the organisers will give it some publicity and send the promised tickets next time?

Maybe they will also take some advice from the people up here, who know what they are doing, and make the next one a commercial success.

David Mycock
Manchester

family to relate to, occasionally, so I'm still struggling nine months later since I can only spend a half hour or so on it each time I play.

Can you tell me which games can be saved for another time and has anyone got a cheat poke for Head Over Heels on the PCW?

Jeremy Vaughn
Woking

8000 PLUS You can save your position on anything described as an 'adventure' but rarely on anything else. On the strategy shoot-'em-up Tau Ceti there seems to be a bug with the save routines and they don't work.

Damage appeal

Can I appeal to your readers for a few examples of corrupted or otherwise unreadable 8256 or 8512 A drive discs to try data recovery on? No charge will be made if I manage to unravel them, but it would be helpful if postage both ways were taken care of by the owners. If possible, keep a

8000 PLUS Steve (b. Hackney, London) replies – It really did take forty minutes and I saw no signs at all. Perhaps the fact that a helpful and well informed Mancunian bus driver put me on a bus which went to Victoria station slowed me down a bit.

I saw no signs at all when I decided to walk from there, and though I asked directions few knew of it; even a traffic warden had apparently never heard of G-Mex. In fact when I did get there, courtesy of a visitor from Birmingham going the same way, there were still no signs to the computer show; I actually thought I might be in the wrong town.



I have a theory, probably nonsensical, that even after reformatting some of the digital information is left between the tracks, so to speak, where it can be read by the typesetting computer.

As you know, the disc doctor, Dave Smith, has been able to rescue data from a disc inadvertently reformatted, proving that this process does not necessarily result in a completely clean disc.

As a precaution I am now formatting and verifying my discs in DiscKit under CP/M rather than from within LocoScript 2, but cannot yet claim that this is a solution to my problem.

If others suffer from this trouble there might be an opening for someone to produce an eraser for CF2 discs which wipes the whole area of the disc clean, analogous to the bulk erasers used for audio and video tapes. One prospective customer at least is waiting.

Reg V Ward
Holwell

8000 PLUS First we've ever had a stand completely but sometimes heard? Of course it would and never PCW disc – more to doubt corruption the electronic smog time.

Questions

First of all I'd like to say that 8000 Plus is the best magazine for PCWs, but that's enough crawling, it hurts my knees, and anyway, it's only an excuse to ask some questions.

I do a lot of programming in BASIC, well try to, and I have a joystick which I would like to use for menu selection and that type of stuff. How can it be done?

Is there a speech synthesis unit I can plug into my PCW and use from BASIC or CP/M?

On one of my discs is a utility called TRACE.UTL, what's it used for?

Would it be possible for 8000 Plus to do an article on CP Software's Lightning BASIC extensions, I find the manual pretty hard to follow, especially the use of sprites and icons.

Well, all that remains to be said is – keep up the good work.

Greg S Payne
West Wimbledon

8000 PLUS Cascade manufactured a joystick and interface for the PCW – try them on 0423 504526. INKEY\$ should work with a joystick, which will return some sort of number when you press the fire button or move it in a certain direction.

The only speech synthesis unit we know of is made by SM Engineering. Basically it is a

POSTSCRIPT

bare board for use with SM's Parallel I/O interface. For further information contact them on 0323 766262. We hope to review it next month.

TRACE.UTL works with SID, a utility used by a utility in fact. To quote the Digital Research manual 'The TRACE utility obtains a backtrace of the instructions that led to a particular break address in a program under test'. Should an empty page crop up this will be covered in all its fascinating detail.

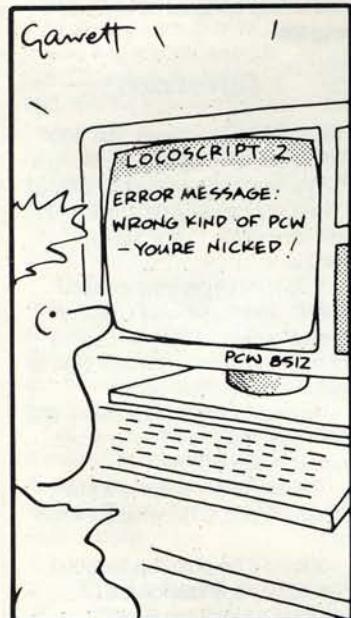
An article on the Lightning BASIC extensions is under consideration.

Crime doesn't load

I would like to use the LocoScript 2 which came bundled with our new PCW 9512 on the PCW 8256 but it won't let me. Can it be done?

R Campbell
Berwickshire High School

8000 PLUS As you know, software isn't bought, only a licence to use it. In this case the licence is only for the machine with which it came, so even if it did work you'd be breaking the law. To avoid you doing this unwittingly Locomotive have thoughtfully ensured that the 9512 LocoScript won't work on the 8000s.



The moving hand

I am shortly to embark on the preparation of a long manuscript which will end up being about 100,000 words on musical history. During the course of this I will be collecting a lot of information in various libraries using a Z88 - the keyboard is the only one quiet enough to keep the librarians happy! The problem I have is this. I'll end up with something like

100,000 words of notes in a haphazard order to be organised in some way and turned into my manuscript. Now, I know that I could print the lot out (yes, I've managed to get the transfer process from the Z88 to my PCW worked out at last!) and work from there, but I wonder if there are any programs which might handle the text for me as a database - rather like the card-index database I have in Mini Office, but working on texts of different lengths? And it would be nice if it worked with LocoScript - or is that asking too much?

Jane Bealby
Oxford

8000 PLUS Yes, such packages exist. They're called 'free text' databases and enable you to store chunks of text as files and search through them looking for keywords which you have specified in those files. You can shift and copy chunks of text from file to file in various degrees of sophistication. Next month we're doing a feature on the various tools a writer can

use on their PCW, including free text databases. One important new release is Script2Base, which we'll be reviewing next month as well. It promises to work in LocoScript as a free text database.

My personal favourite solution to the text database problem though is to use Protext. The disadvantage is that you have to learn a new word processor; as a text handler and shifter about it's unbeatable. Because of its speed of file access and extraordinary range of functions it can do everything a free text database can do and more. (It's advertised throughout 8000 Plus).

For example, you can work on two files at once - a file of notes, say, and a working file - and swap between the two instantly, copying bits from one to the other if you wish. You can also write program-like sequences of commands to shift text about. I've seen one such Protext enthusiast's program which, at the touch of a key, asks you for a word and searches through all the files on the current disc looking for that word. It copies any paragraph containing that word into a new file, giving you an instant way to create

And another thing...

While programming in BASIC, I keep running up against the same few problems:

1. Is there a way to do an INPUT routine without causing a line feed after pressing the RETURN? (I still want to use RETURN as a validation).
2. How can I set a mugtrap to guard against the 'Redo from start' error message appearing, when INPUTting letters instead of numbers for instance?
3. Is there a way of programming an action to take place whenever, say, the [EXIT] or [DEL] keys are pressed, regardless of whereabouts in the program you are? At the moment the only way I know of involves INKEY\$ and uses the result to perform the action or carry on, but I don't want to keep interrupting the program with INKEY\$ routines.
4. How can I set up and erase a window (eg. for a pull-down menu) without erasing the text on the main screen underneath it?
5. How do I get lines to scroll up within a window, without scrolling the whole screen?

I'm sure it can't just be me that has these problems, so I hope you can help me out!

Luke Mastin
London

8000 PLUS 1. Yes. Use WHILE...WEND and INKEY\$ as below. Here S\$ is the string you input.

```
5 PRINT "Give your string..."  
10 WHILE a$<>CHR$(13) : s$=s$+a$  
: a$=INKEY$ : WEND  
20 PRINT s$;  
30 (program continues...)  
No line feed occurs after line 20 but [RETURN] still ends the string.
```

2. Use VAL as follows:

```
10 INPUT "Give your number";a$  
20 a=VAL(a$)  
30 PRINT a
```

The variable a holds the number typed in at the INPUT, or is zero if a string was entered. You can carry on with something like IF a=0 THEN PRINT "I said a number, bozo" : GOTO 10. 3. Weeeelll, yes, but... What you have to do is muck about with the interrupts which work on [PTR] and [SHIFT][EXTRA][EXIT] and so on. If you've used 'Flipper', which flips from LocoScript 2 to CP/M and vice versa on pressing [SHIFT][EXTRA][EXIT], you'll see what can be done. Unfortunately this takes a lot of expertise in assembler and deep knowledge of the machine's architecture, and would take a whole series to explain!

4. Again, possible but extraordinarily tricky, involving screen RAM and all sorts of complicated stuff. The simplest way is to save the whole screen as it was, draw your menu or help screen or whatever, then recover the old screen. A screen saving routine appeared in Listings last month.

5. Lines will scroll up in a window anyway your only problem is recovering the old screen as in answer 4.

papers on various subjects from your notes file!

Abridged too far

As a regular reader I have been waiting for someone else to raise the following question; I am naturally lazy. I have a fairly large user dictionary in LocoSpell as a considerable amount of my writing concerns technical matters and I wondered if there were any way of printing out this dictionary, or indeed the LocoSpell one?

Gordon Terry
Reading

8000 PLUS This laziness is catching. Anyone out there have the answer?

Clever beggar

'Begging the question' (p27, issue 27, Dec 88) does not mean 'inviting a further query', as you seem to imply in 'As always the knowledge can be a little artificial and often begs more questions...'

This is a device much beloved by politicians and anti-pornographers being interviewed on the radio and who wish to avoid answering an awkward question. They assume, or pretend, that what they are being asked to prove forms the basis of the proof itself and go on to talk about the supposed results of that proof instead:

"How do you know that reading 8000 Plus makes you go blind?"

"Well, you know, the incidence of blindness in our community is ever increasing and the presence of magazines like 8000 Plus can only make matters worse for us all. And I do mean us all. The provision of white sticks alone costs the Health service, and therefore the tax payer, more than the entire yearly revenue from Manchester..."

Chambers Twentieth Century Dictionary goes on to say it is 'to fall into the fallacy of *petitio principii*' but I don't suppose that takes us much further, apart from suggesting that the provision of LocoGrammar in the foreseeable future is unlikely.

Richard Suffolk
St Annes on Sea
Lancs

8000 PLUS Well, we did say 'begs more questions' not 'begs the question', so at least we misused it improperly. Chambers? Hah! What do they know! Good plain English, that's what I believe in, speak as I find, call a spade a spade, publish and be damned, horses for courses.

As Winston Churchill said, 'I'd drink that coffee, up with which I shall not put'.

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More of 8000 Plus's limbo files...

Hacked off

How do hackers break into other people's systems and get access to sensitive information? Clearly they must be extremely clever and know lots about assembly language and machine code, mustn't they?

Well, hacking may be easier than you think. Life for the hacker is often made ridiculously easy by the fact that people choose passwords like SECRET, or PASSWORD, or their name, or words on the keyboard like ASDFGHJKLM or ZXCVBNM, and think *no-one* will ever guess that.

Future Publishing's Christmas Party last year was held at a well-known hotel round the corner, and after the dinner everyone moved into the bar lounge area. An unattended computer terminal was there, switched on, with the booking program opening menu asking for a password. Purely in the interests of science a few computer journalists couldn't resist trying to guess it. It took about twenty seconds. After unsuccessfully trying the name of the hotel, PASSWORD and SECRET, one bright spark tried QWERTY. Sure enough, there we were in the system, which was very easy to use even for a first-time user (as all software should be). Had we been so inclined, we could have booked a room for that night free, found out the addresses of guests staying there, and charged the next round to them.

We didn't, of course. But when you're choosing passwords, if it's easy for an operator to remember, it's too easy for everyone else. Especially if you leave the computer running in a bar full of computer journo's.

Thick as a parrot

It's very flattering to be described by callers to the 8000 office as 'experts'. If only they knew. Next time you think you're being stupid with your PCW, take comfort: here are some of the howlers made by 8000 Plus's 'experts' in the past...

- A certain technical editor spent twenty minutes cursing because he couldn't work out how to get back to CP/M from LocoScript (*LocoScript doesn't run from CP/M*)
- An editor who shall remain nameless wasted half an hour trying to work out why one of the PCWs here was totally inoperative and refusing to recognise keyboard input either in LocoScript or CP/M. (*The art editor quietly pointed out that this was probably because the keyboard wasn't actually plugged in*)
- Another anonymous member of the team couldn't work out why her italic and bold commands in LocoScript were



...they sometimes look like this



Hackers don't always look like this...

Silliest PR photo of the month

The world's shortest fire brigade answering a 999.



not printing out; they just came out on the printout as +i and -i and +b and -b. (*It was gently noted that the + and - keys next to the numbers are different from the [+] and [-] set keys on either side of the space bar*)

- Though none of these were quite as bad as a PCW owning member of staff who writes columns for a variety of trade and popular magazines. He thought there must be something wrong with his copy of DISCKIT because 'it wouldn't format discs in the M drive'...

NEXT MONTH

● Writer's software

new programs on test plus a roundup of all the tools to get the best out of your PCW

● Training courses

where to go to get the best LocoScript and PCW tuition

● Speech synthesiser

Can your PCW really be made to speak? Yes it can...

● Lightning BASIC

the updated version of the BASIC graphics enhancer on test

● LocoFile

How to get the best out of the LocoScript database

● The things they tell you

How much do dealers know about the PCWs they sell you? We investigate...

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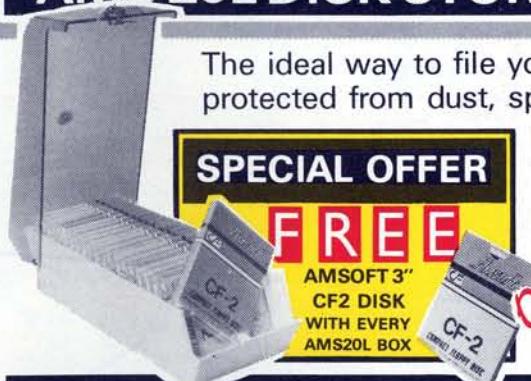
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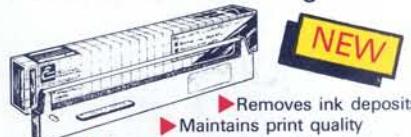
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Still the only high-res graphics spreadsheet for the PCW family

The Cracker is a unique spreadsheet for PCW users. As well as providing the features and facilities of a full function financial and scientific spreadsheet, it can create complex graphs on the screen and (dot matrix) printer.

The latest 'turbo' version has speeded up screen handling considerably, but still costs only £49.95 inc VAT...

- A new manual with comprehensive indexing and many examples makes the power of *Cracker* accessible to a wider audience.
- Suitable for simple adding up as well as complex structural analysis.
- High resolution graphics that can be used as a stand-alone graphics package or from calculated values: Bar charts, stacked bar, hi-lo, pie, line, area, XY, LogX:Y, LogX:LogY (With multiple labelling options)
- A very straightforward upgrade path to 16 bit editions on PCDOS and CDOS.

Powerful command structures

- DO-WHILE iterative loops.
- Day, date and timing functions: DATE, DATEAFTER, DAYSAPART, DELAY, TIMELAPSE etc.
- Macro facilities ...and much more!

Cracker:

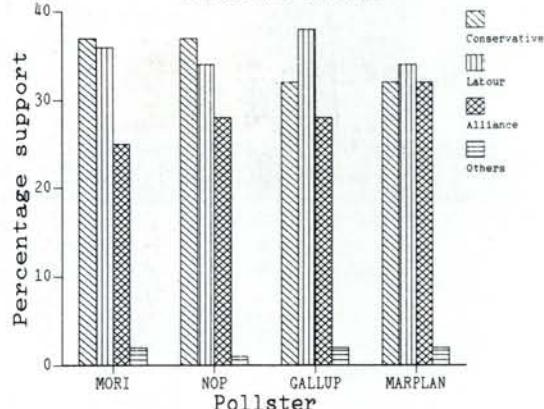
Original and still best

Cracker was originally created over 5 years ago by Ian Searle to provide himself with a range of facilities that he couldn't obtain in existing spreadsheet and calc programs.

So *Cracker* has one of the longest pedigrees in the business. The fact that it has maintained a consistent interface when the numerous enhancements and extensions have been added - without undermining the basic elegance and power of the product - is a tribute to the original concept.

Cracker 2 continues to evolve as a 'live' product under current development by its original author: few if any other full-featured spreadsheets for the PCW can make this claim.

OPINION POLLS
Comparison of Pollsters



Example plot from a PCW printer

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